MAY
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FOOD PROCESSING

Highlights

The Cover Picture

After air flotation was used to separate skins, splits, and trash from lima beans and peas, processing labor on Seabrook farms' inspection lines was cut in half. Each separator handles 3000 lb/hr. For details see page 16

Published in Chicago
FOOD CAPITAL OF THE WORLD

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Bodies of this versatile valve are made in a variety of metals — iron, stainless steel, bronze, aluminum and others. *But of more importance* is the fact that a body of cast iron (a metal not in short supply) can be lined with glass, lead, natural rubber, neoprene and other materials which, in many instances, handle corrosive fluids *better* than metals.

Diaphragms come in natural rubber, neoprene, butyl, hycar, a special synthetic for foods, and KEL-F. This last is chemically inert to all acids and alkalies in all concentrations with the exception of molten alkali metals.

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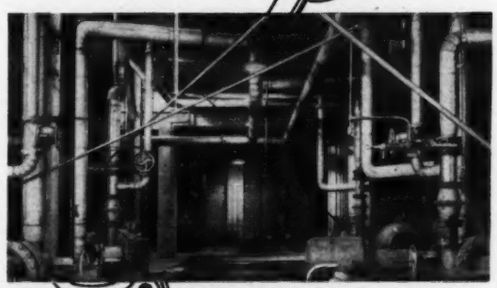
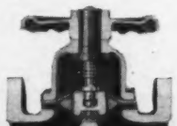


PULP AND PAPER MILL. Rubber-lined Grinnell-Saunders Valves on stainless steel piping handle sulphate pulp stock in bleach plant of Potlatch Forests, Inc., Lewiston, Idaho.

OPEN

Showing rising spindle . . . valves are available with rising or stationary spindle.



CLOSED

KEL-F diaphragm, using special rubber backing cushion and floating tube nut design.

CHEMICAL PLANTS. Glass-lined Grinnell-Saunders Diaphragm Valves, with KEL-F diaphragms, handle chlorinated organic chemicals at Hooker Electrochemical Company, Niagara Falls, N. Y.

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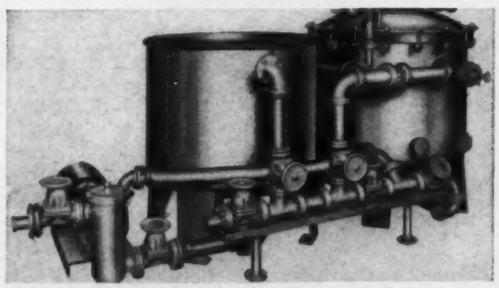

EQUIPMENT MANUFACTURERS. Grinnell-Saunders valves with rubber linings are standard on filtration equipment for solution clarification, made by Industrial Filter & Pump Mfg. Co., Chicago, Ill.

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"That's Interesting"

Dry ice tables put frozen foods on display where traffic's heavy

Display table for frozen foods, utilizing dry ice cartridges, ha capacity for 40 dozen cans of juice concentrate or relatively lar quantities of other products. Especially suitable for mass displ on week ends. Items displayed in the table are held at less tha 5°F over a 24 hour period. Dimensions of table are 2½ x 4 f Its accessibility from four sides, when located in heavy traffic aisle offers a distinct advantage. A cover provides protection for me chandise and dry ice during non-shopping hours. Cabinet ha baked white enamel steel exterior shell with interior tank be galvanized steel. Design of table prevents public from coming i contact with dry ice.

Spot checks indicate that frozen foods, such as the popular jui concentrates, have never been tried by more than 50% of foo buyers. Minute Maid Corp. are the first volume users of the tab designed and developed by William Melish Harris, Dept. FP, 5 Vanderbilt Ave., New York 17, N. Y. . . . or for more informa tion check FP 3846 on handy form, pages 2 and 3.

Ocean and electronic waves

The nation's newest and largest ocean liner, S.S. United States will provide its passengers with meals cooked electronically b microwave energy through the use of two Raytheon "Radarange" units. (Raytheon Mfg. Co., Waltham, Mass.)

Atomic bomb survival kit

Boy Scouts of the Armco-sponsored troop in Middletown, recentl joined with other Boy Scouts in developing an atomic bomb sur vival kit. Second Class Scout Richard Lee Stiles assembled a ki that fits in a safety match box. It includes a fish hook and line copper wire with which rabbits or other game might be snared Halizone tablets with which to purify drinking water; razor blad for cutting wood or protection against snake bites; compass "Band-aid" dressing; paper and pencil for notes and identification waterproof matches. (As reported in *Arm-cooperator*—Armc Steel Corp., Middletown, Ohio.)

R. I. using license stickers

Windshield stickers with special reflective quality, making them visible for the distance of one block, are being used instead of ne metal number plates for the 1952 registration year in Rhode Islan An estimated savings of $48,000 and release of 155 tons of ste will result from use of the emblem.

Cardboard cutouts teach children how trucks serve community

Children, in the intermediate grades, are acquiring a practic knowledge of the functions of motor trucks in the community an the manner in which they serve in the nation's transportation l means of three-dimensional cardboard cutouts. The complet material is contained in a work kit designed especially for cla room use. It includes a large base sheet and two background sheets printed in full color that provide a faithful reproduction a typical community, block by block. Industrial, commercial an residential areas are all portrayed. Miniature trucks are made fro numerous perforated sections which are cut out, folded and paste to make 31 different models. These tiny trucks are placed on t base sheet at specified locations.

Recently, Trailmobile, Inc. made a number of the kits available schools in the Cincinnati, Ohio area. The kits are designed an produced by Education Research Inc. for the American Trucki Associations, Inc., 1424 16th St., Washington, D. C. The wo kits are available at nominal cost.

Cheese ages fast

Speeding up aging time of cheese with a trace of manganese being studied at Washington State Institute of Technology, Pu man, Wash. Reduction of aging time from months to days wo save considerable inventory cost. (Industrial Research Newslet Armour Research Foundation, Chicago, Ill.)

(*Continued on third co*

FOOD PROCESSING

(FOOD PROCESSING PREVIEW)

The News Magazine of Processing Developments and Control

Published in Chicago
FOOD CAPITAL OF THE WORLD

Vol. 13 MAY, 1952 No. 5

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Highlights

(*Continued from front cover*)

- "A New Profession — Food Engineering" by Dr. Paul D. V. Manning, Vice President in Charge of Research, International Minerals & Chemical Corporation
- Loose skins, splits, pod fragments of lima beans and peas are separated pneumatically at Seabrook Farms
- Pasteurizer, designed for dairy industry, adapted for cooling Mogen David wine down to 22°F
- Combines enzymes, mineral salts to make bread doughs dry and pliable
- Save 2 days when refrigerated trailers speed shipments of fresh meats from St. Joe, Missouri, to West Coast
- Sliding gates divide box cars into compartments, prevent shifting of LCL shipments
- No gear shifting or clutching for drivers when trucks have automatic transmissions
- Dries up to 450 cool cans per minute with blasts of cool air
- Krey Packing Company wraps two cans together under one label
- How Armour packs beef stew at high speed without spilling gravy
- Cushioning material easily fabricated into protective package
- Pasteurize liquid egg with milk equipment
- Sprays without injuring tall row crops
- Records pH at one or more stations whether solution is flowing or static
- Only cargo temperature, not vibration, recorded by tiny instrument
- Pumps thick pastes, slurries without pistons, bearings, or impellers
- Lucite permits operator to see what's happening on inside of the filter
- Reveals consistency grade of viscous products

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3. To Subscribe to This Magazine . . . see Readers Service Department slip opposite page 84

Advertisers in This Issue 84

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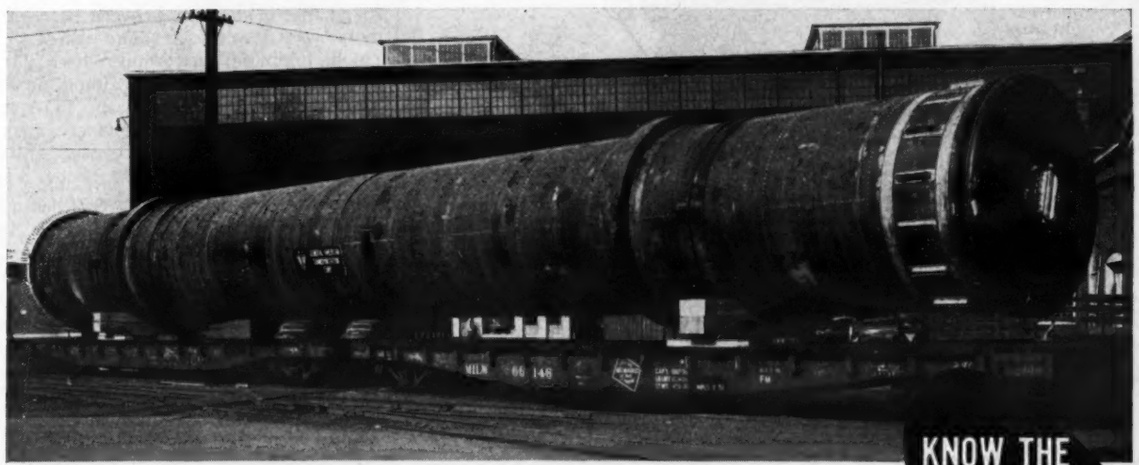

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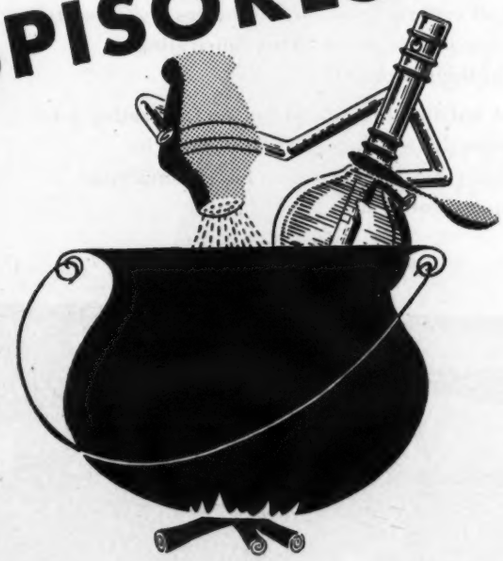

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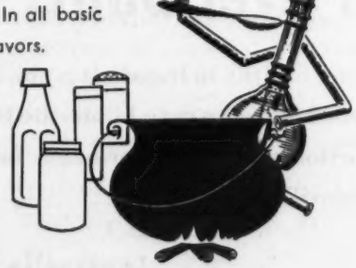

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Food News and Interpretations

Current Washington Activities
Other News Developments
Pertinent To Processing

FDA's seizure of cheese — another incident in the chemicals in foods controversy

The Food and Drug Administration isn't fooling in its campaign to prevent the use of the new cheese wrapper containing dehydroacetic acid. At press time, three seizures, had occurred of cheese packaged in this type of wrapper and FDA officials said others were in process.

The new wrapper was developed after cheese processors found that in the time between packaging and sales some mold was developing. The search for an antimycotic (mold inhibitor) that would check this development resulted in the wrapper containing dehydroacetic acid — which FDA says flatly is toxic. FDA tests show, officials contend, that the toxic substance enters the cheese, particularly the layer in direct contact with the wrapper.

FDA contends that cheese containing traces of dehydroacetic acid is in violation of Sections 402 a2 and 406 of the Federal Food, Drug, and Cosmetic Act. These sections clearly state that a food shall be deemed to be adulterated if it bears or contains any added poisonous substance except where such substance is required in the production thereof or cannot be avoided by good manufacturing practice (in the latter case the FDA administrator is authorized to establish tolerances).

FDA takes the position that cheese was packaged for years without using this type of wrapper, so they say it is self evident that the wrapper itself is not necessary. This position, however, fails to take into account that sliced cheese is a very new development and offers some unusual problems of mold prevention. But FDA officials point out that at least one major company claims success in retarding mold development by maintaining "hospital cleanliness" conditions in processing and packaging.

The seizures should not be interpreted as any attempt by the FDA to strike at the merchandising method, so commonly used by the cheese processors, in which a consumer-sized package of cheese is wrapped in a transparent wrapper. Nor has FDA any objection to the industry developing and using some kind of mold inhibitor in its cheese wrappers providing no poisonous or deleterious substance results in contaminating the cheese.

According to the sponsors of the new cheese wrapper containing dehydroacetic acid, development work has been underway for the last six years to demonstrate the effectiveness of this material when used for cheese packaging. Extensive tests were conducted to demonstrate that no harm to health would result from the use of this material on a food product.

Results of these tests were presented to the FDA and according to the manufacturers, FDA indicated that no further testing was necessary. From the manufacturer's point of view, it appears that FDA has reversed its position and elected to use the seizures as a method of notifying users of its objections.

(*Continued on page* 8)

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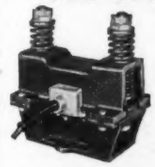

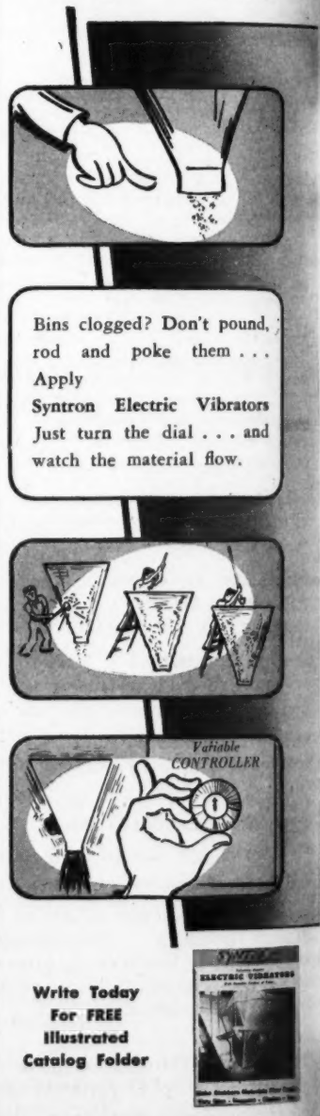
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SHELF LIFE...

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New Antioxidant Salt is as simple to use as common table salt. If sodium chloride is used in your processing, Antioxidant Salt will fit into your operation without extra equipment or labor.

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The effectiveness, ease of use and economy of Diamond Crystal Antioxidant Salt will more than justify its test in your operation. Samples are available upon request. Send for yours right away! For further information, write to Technical Director, Diamond Crystal-Colonial Salt Division, General Foods Corporation, St. Clair, Michigan.

DIAMOND CRYSTAL Antioxidant SALT

When inquiring check FP 3852 on handy form, pgs. 2-3

A New Profession FOOD ENGINEERING

This editorial was prepared at the request of the editors of FOOD PROCESSING and is authored by

DR. PAUL D. V. MANNING
Vice President in Charge of Research
International Minerals & Chemicals Corporation

Directing all technical and scientific work of the corporation, Dr. Manning is responsible for process development and equipment selection for plants producing minerals, phosphates, amino acids, monosodium glutamate and plant foods.

He received his bachelors and masters degree in chemistry at Stanford University and California Institute of Technology respectively and his PhD in Chemical Engineering at Columbia University. Joining International Minerals & Chemical Corporation in 1941 as director of research, he became Vice President in Charge of Research in 1943.

Dr. Manning is co-discoverer of "Factor U" (folic acid). His other researches include development work on evaporators, spray dryers and their application to the food industry.

Dr. Manning is active in a great number of scientific and technical organizations including the American Institute of Chemical Engineers, American Chemical Society, and Institute of Food Technologists. At the present time he is chairman of the I. I. T. Food Technology Council.

INAUGURATION of a course of study leading to a degree in Food Engineering at Illinois Institute of Technology has prompted some speculation as to its basic objectives and the respects in which it differs from Food Technology and Chemical Engineering.

Many of the basic unit operations of chemical engineering such as heating, cooling, drying, mixing, concentration, extraction, and separation are widely used in the food processing industry. They have been developed to a highly advanced science by the chemical engineer during the past fifty years. Yet, only relatively few chemical engineers have given any attention to the rapidly expanding field of food processing.

The need for technically trained men who were inspired to work in the food industry was first met by filling industrial posts with bacteriologists and biological chemists. Later, technologists were trained by the schools for the somewhat narrow segments of the industry such as dairy, canning, confectionery, brewing, and baking. In some cases, such as baking, industry itself set up its own schools. In the mid-thirties some of our leading colleges began training technologists with a broader background, and food technology as a profession came into being shortly thereafter.

Since then, food technologists have worked in food research, planning and development, building, operation and production, and distribution. As the colleges endeavored to train men who would be of maximum service to the food industry, it became evident that the unit operations and processes of chemical engineering which were applicable to food processing should be included in the curriculum for food technology.

It was also recognized that neither the food technologist

(Continued on next page)

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- If cost, contamination, or full use of process equipment are prime considerations in your operations, try Antifoam A. Practically odorless, tasteless and non-toxic, Antifoam A is safe, fast and by far the most economical and versatile defoaming agent on the market.

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(*Continued from preceding page*)

nor the chemical engineer is fundamentally equipped for *maximum* service in the food processing industry. If they had been so equipped, developments such as frozen concentrated orange juice, flash sterilization and flash cooling with asceptic canning, would have been available years ago. The facts were known, the scientific laws applicable were understood, the engineering technics available, but they had not been brought together effectively. As a result progress was relatively slow.

Recognizing this problem, Illinois Institute of Technology, under the leadership of Milton E. Parker, initiated a curriculum specifically designed to train food engineers. This was done not by giving food technologists a chemical engineering background or chemical engineers some biological training, but by developing a course designed especially to fit the needs of food engineers. Such useful ideas as unit operations are freely borrowed from chemical engineering, and are being used to train men for this new profession as food engineers.

In some ways, this development may be likened to that of chemical engineering. Fifty years ago, when recognition of chemical engineering as a profession first began, the technical school education of chemical engineers was hybrid-chemistry plus mechanical engineering. Without teachers trained in the very subject matter taught, progress was slow. It required many years to develop the necessary language and literature.

The skillful integration of food engineering with food technology in its present highly advanced knowledge of basic operations and processes, in part developed by the chemical engineer, should bring rapid progress. The food industry will undoubtedly view this with high hopes and actively cooperate in its development .

A practical endorsement of the food engineering program at Illinois Institute of Technology was the establishment of the FOOD PROCESSING Fellowship by Putman Publishing Company in 1951. The second fellowship is now in the process of being awarded, and, like the first one, grants the sum of $2000 for a year of graduate study developing food engineering as a science and a profession.

Food News & Interpretations

(*Continued from page 6*)

Tin situation remains clouded despite signing of contracts

About two-thirds of the tin needed by the United States this year is now assured under contracts signed with the United Kingdom, Idonesia and Belgium, and prospects were brighter at press time that an agreement can be negotiated with Bolivia for the remainder.

The recent relaxation of the tin can order, had little, if anything, to do with better tin prospects. Instead, it reflected what National Production Authority officials describe as a surplus of tin plate in the hands of manufacturers. Actually, while can regulations are easier for the second quarter, the allocation of tin to can manufacturers is down slightly compared with the first.

This is of considerably more importance than it appears to be on the surface, in the opinion of NPA officials charged with doling out tin supplies. They believe the

Natural spices help prevent the deterioration of fats in food.

Research conducted at the Hormel Institute demonstrated the antioxidant value of natural spices. Oxygen was passed through steam-treated lard in which ground spices were mixed, and the deterioration was compared with unspiced samples. Results: "Virtually all samples tested showed at least some antioxidant activity; in a few cases, the antioxidant effects were very pronounced."

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can situation was a technical condition in the second quarter, and warn that if something disrupts the Bolivian negotiations there will have to be a tightening of tin allocations later this year.

Here is the way the tin supply picture looked at press time: from the U.K., 20,000 tons, with virtually all expected to be delivered this year; from Indonesia, 18,000 to 20,000, of which not more than 15,000 will reach this country in 1952; and from Belgium, between 7000 and 9000 with delivery dates still uncertain. So-called "odd lots" from Europe will add a small amount.

Against this, the United States used 60,000 tons of tin in 1951 and the demand is at least 65,000 tons this year. But the Navy shipbuilding program can take a sizeable additional amount, though the figures are not in yet, and the defense program in other areas can make slight disruptions in the normal distribution pattern.

The pending action permitting unlimited use of blackplate is of questionable value, insofar as tin usage is concerned, since it takes a lot of solder to close a blackplate can. And officials said the same holds true when extremely thin coatings of tin are used on food cans.

Cans for fruits and vegetable products, including juices, accounted for the increase, rising some 50,000 tons in 1951 as compared with 1950. Most other food processors used less cans last year than the year before, with the sharpest reduction a 30 per cent cut in the tonnage shipped to fish and sea food packers.

With restrictions on the use of cans a good part of last year, latest figures from the Census Bureau show that shipments of food cans increased to 2,560,000 short tons in 1951 against about 2,550,000 in 1950. However, non-food shipments fell 100,000 tons in 1951 bringing total can shipments last year below the 1950 figures.

Many authorities to address Flavoring Extract Assn.

"Chemicals in Foods" will be the subject on which Dr. R. C. Newton, vice-president and technical director of Swift & Co. will speak at the convention of the Flavoring Extract Manufacturers' Association to be held May 25-28 in Chicago. Paul S. Lucas, dairy department, Michigan State College and Dr. Wm. B. Bradley, scientific director of the American Institute of Baking, are among other prominent speakers.

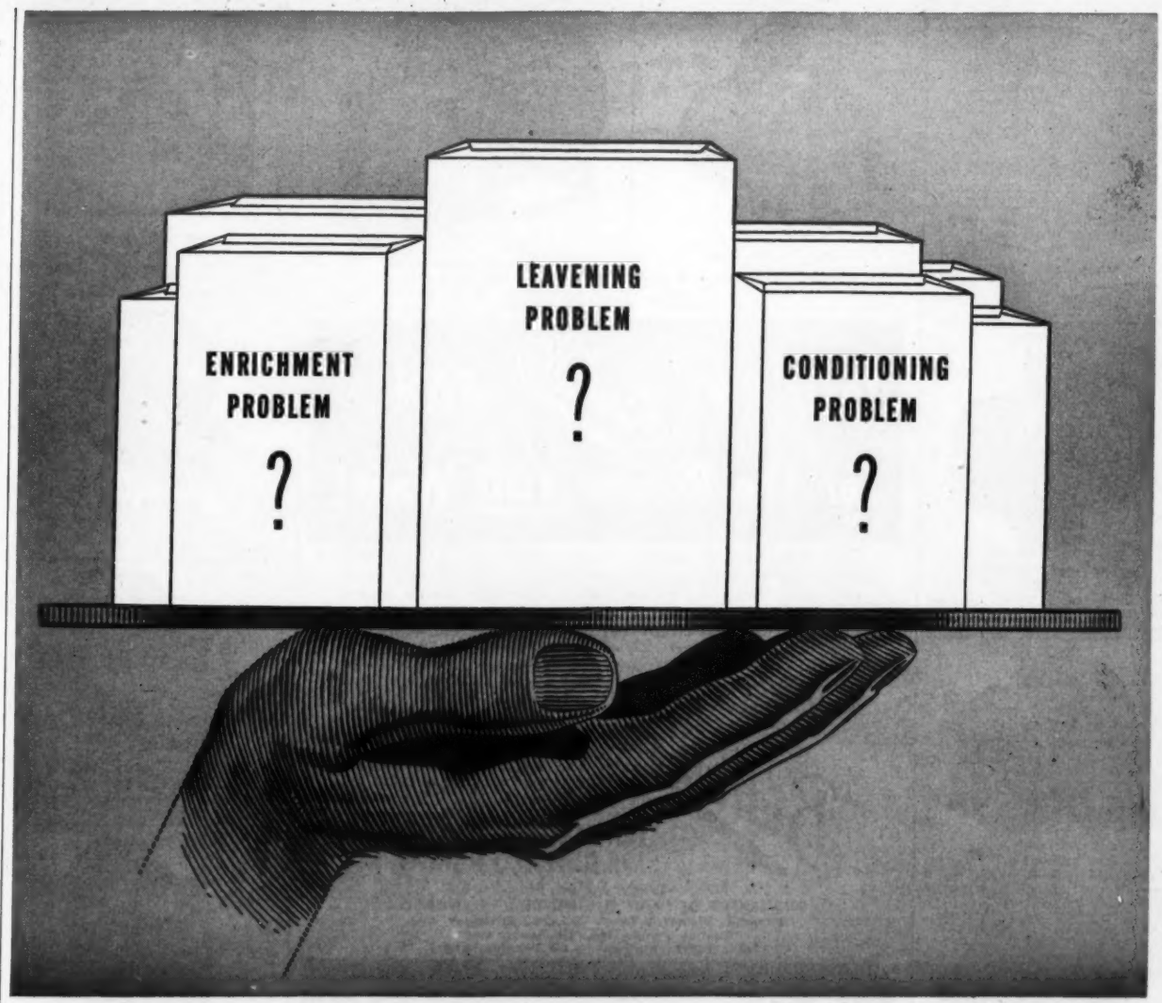
Requirements for flavorings used in products sold to quartermaster corps for the armed services will be discussed by H. B. Cosler, general products division, US Quartermaster Corps. Dr. Clarke E. Davis will highlight the industry supply problems.

Technical men will be interested in photomicrograph slides of spoilage organisms found in beverages which will be shown by J. M. Blatterman, Warner Jenkinson Co.

Military set-aside forms available for '52 canned fruits, vegetables

Set-aside order detailing the amount from the 1952 pack of canned fruits and vegetables for US military and Veterans Administration purchase has been issued by the USDA. Total requirements are substantially below those of 1951, amounting to about 7.7% of the "base period" for fruits and 8.5% for vegetables; 75% of the

(*Continued on next page*)



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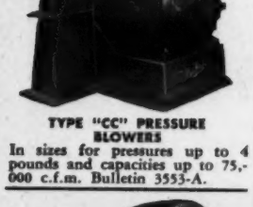

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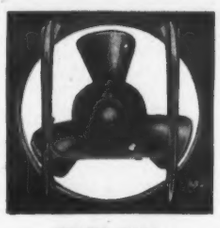

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FOOD NEWS & INTERPRETATIONS

(*Continued from preceding page*)

requirements preferred in No. 10 cans. When the processor has produced a quantity equal to 40% of his "base pack", order requires that he have set-aside ½ of quota.

Commodities covered include: asparagus; lima, green and wax beans; carrots; sweet corn; green peas; pumpkin; sweet potatoes; tomatoes; castup; tomato paste; apples; applesauce; apricots; black and blueberries, RSP and sweet cherries; Kadota figs; fruit cocktail; peaches; Bartlett pears; purple plums; and pineapple.

Copy of the order and reporting forms are available from the Fruit and Vegetable Branch, PMA, Dept. of Agriculture, Washington 25, D.C.

Cost-of-living wage boost granted farm labor

Wage Stabilization Board's cost-of-living policy can now be applied to wages of agricultural labor. The Board's resolution permits adjustments to match the increase in the cost of living since January, 1951. Specifically the resolution states, "rates may be increased without Board approval up to and including (a) a 1951 base rate, plus 5% thereof, or (b) a 1950 base rate plus 15% thereof."

How food processors fare on tax amortization

Food processors have fared about as poorly as any industrial class in their attempts to get certificates of necessity from the Defense Production Administration allowing them to write off part of their proposed plant expansions in five years instead of the normally longer period.

The first detailed breakdown made public by DPA showed that only 43 expansion projects involving a proposed investment of $10,754,000 have received tax certificates — and that these cover only $3,753,000 worth of the proposed investment. Another 35 applications are pending involving a proposed investment of $9,497,000.

It is interesting that the two applications, permitting by far the largest percentage of tax amortization in the food field, were construction projects involving dried and dehydrated fruit and vegetable plants. Of a proposed $491,000 investment, a fast write off privilege of 70.7 per cent or $347,000 was granted.

One other project costing an estimated $530,000 is on application at DPA in this same category. There is strong indication that it will get about the same treatment, though each case is examined on its own merits.

Canning projects are the largest single food plant classification in number, the amount of proposed investment, and the amount the government will certify for fast amortization. So far, 30 projects costing an estimated $6,042,000 with write off privileges involving $2,090,000 have been authorized. Another 12 projects involving $2,005,000 worth of proposed construction are pending.

This does not include the entire canning field, however, being limited to canned fruits, vegetables, soups, preserves, jams, and jellies. For instance, no certificates have been issued yet for canned sea food facilities, but four applications are pending for plants aggregating $2,506,000. In addition, one food preparation that was not classified precisely was allowed a $130,000 certificate for a $200,000 project, or 65 per cent of the proposed investment, and four other unclassified projects involving $150,000 in all are pending.

Here is the way the certificates, both issued and pending,

stack up in the food processing field:

Wholesale meat packing — none issued; four pending involving $735,000.

Sausages and other prepared meat products — none issued; one pending involving $106,000.

Sausage casings — none issued; one pending for $304,000.

Poultry and small game dressing and packing, wholesale — three issued for $21,000 (24.7%) involving $85,000 proposed investment; one pending for $226,000.

Condensed and evaporated milk — one issued for $144,000 out of $288,000 (50%); none pending.

Special dairy products — one issued for $178,000 out of $356,000 (50%), none pending.

Pickled fruits and vegetables, vegetable sauces and seasoning, salad dressing — one issued for $69,000 out of $313,000 (22%); none pending.

Frozen fruits, vegetables, and sea foods — one issued for $56,000 out of $222,000 (25.2%); one pending for $262,0000.

Flour and other grain mill products — one issued for $153,000 out of $305,000 (50.2%); one pending for $108.00.

Prepared feeds for animals and fowls — none issued; three pending for $2,321,000.

Cane sugar refining — one issued for $537,000 out of $2,146,000 (25%); none pending.

Shortening and other cooking and edible fats and oils not otherwise classified — one for $28,000 out of $310,000 (9%); none pending.

Corn syrup, corn sugar, corn oil, and starch — none issued; one pending for $203,000.

Manufactured ice — none issued; one pending for $51,000.

In the packaging field, some rather healthy certificates are in the works when compared with food processing. For paper bags, only one certificate for $29,000 out of $59,000 have been issued so far, but pending are six others for facilities involving $17,326,000.

Three certificates for paperboard boxes of all types have been issued for $1,825,000 out of $3,765,000, and eight are pending for $11,225,000. For fiber cans, tubes, drums and similar products, four have been issued for $1,578,000 out of $2,947,000 and two are pending for projects involving a proposed investment of $5,945,000.

Grain elevators and mills cooperating with FDA

Food and Drug Administration officials are extremely pleased over the industry wide cooperation it is getting in its campaign against hidden insect infestation and rodent contamination of milling quality wheat. They say grain elevators and mills are cooperating fully, and education campaigns have carried details of the program throughout the country.

The program still is in its infancy, and neither FDA nor the Agriculture Department is able to draw any conclusion.

So far, FDA has made no seizures of wheat, though in planning the enforcement campaign, officials had said seizures "undoubtedly" would occur.

Agriculture Department officials said so far nothing has occurred that would warrant any change in milling wheat

(*Continued on next page*)

Over 80 years ago, John Herman Pine first recognized, through self-treatment of a throat irritation, the demulcent . . . emollient . . . and hygroscopic properties of U.S.P. Glycerine. Today, Glycerine and Pine Bros. are virtually synonymous to a large segment of the general public . . . and consumer interest and acceptance is steadily increasing, as reflected in years of continuous sales increases.

FULLY ACCEPTED . . . FULLY AVAILABLE IN ALL GRADES!

U.S.P. Glycerine serves the manufacturer of pastilles, confections and foodstuffs in a variety of ways! For instance, it acts as an ideal vehicle and blending agent for the five flavors that now make up the Pine Bros. family. Each tablet is uniform in appearance . . . uniform in taste! And versatile Glycerine—blended with Acacia, flavoring and other components—serves as a natural sweetener as well!

U.S.P. Glycerine, as a solvent and extractant for base flavors, is widely favored by extract manufacturers. It adds smoothness to mixtures . . . and distributes flavors uniformly. Even in the field of packaging materials, Glycerine has come to be an important component of wraps that come in contact with food products.

So it is today with dozens of familiar food brands . . . U.S.P. Glycerine often performs two or more functions—preserving freshness or making food products more palatable. In every instance, Glycerine is used with absolute confidence, since *it is actually a wholesome nutrient for food use!* "Why Glycerine for Foods?" tells the story of these many applications . . . why not write for a copy?

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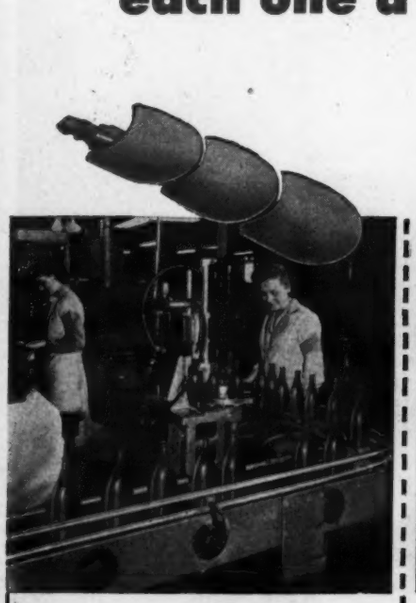

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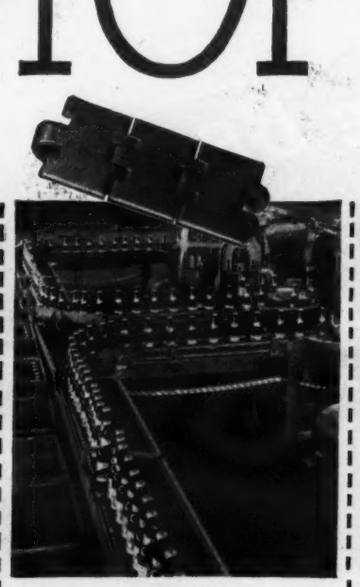

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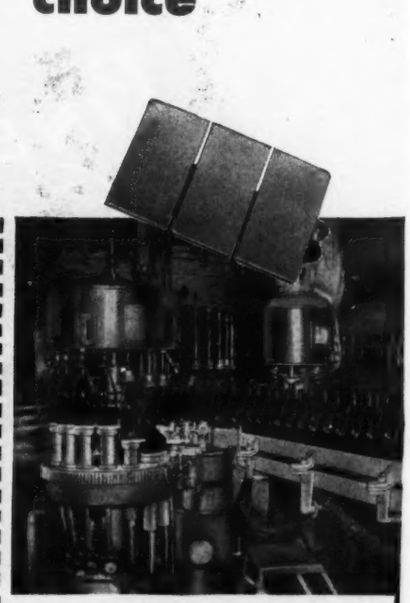

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Where it is advantageous for the chain to weave around obstructions or make many sharp turns, or where the containers being carried are difficult to transfer, the new FlexTop is probably your most economical answer. Where extremely heavy loading is encountered or centers are unusually long, PlateTop may well be most suitable; while under "ordinary" conveying conditions, TableTop has often proved the best bet for dependable, low-cost service.

Your Chain Belt Field Sales Engineer is well qualified to help you select the chain best suited to conditions in your plant. Call him today or write for Bulletin 51-60 which contains all the details. Chain Belt Company, 4699 W. Greenfield Ave., Milwaukee 1, Wis.

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When inquiring check FP 3860 on handy form, pgs. 2-3

(*Continued from preceding page*)

standards, and were of the opinion that nothing will be done in this direction for many months if at all.

Trade reactions has been favorable generally on the theory that it is good business to clean up elevators and mills, but some trade representatives doubt that too much good will result unless the program can be carried to the farm. Under normal conditions, insect infestation starts at the farm level. FDA contemplates an educational program for wheat producers, but believes it must be carried out by the Agriculture Department in cooperation with major farm organizations rather than by FDA itself.

No wave of refusals for FDA plant inspection

The Cardiff case in which the Ninth Circuit Court of Appeals ruled recently that the Food and Drug Industry cannot enter a plant for inspection purposes without the consent of owner or plant manager hasn't resulted in any wave of refusals.

As a result, FDA officials are pretty well convinced that most processors are as anxious to find out about any violations that endanger the sanitation and quality of their product as FDA itself. Inspections have continued as usual, and there is no indication that this situation will change.

Even so, FDA is still interested in getting a hearing before the Supreme Court, and currently is awaiting a court ruling on its petition for *writ of certiorari* filed by the Solicitor General. If it is approved, FDA attorneys expect the Supreme Court will review the case sometime next fall.

USDA proposes more changes in poultry grading program

USDA has proposed further changes in the poultry grading and inspection program in addition to those it offered January 3 of this year. Proposals have been made as a result of consultation with US Army Procurement and industry representatives.

One of the proposed changes would ask a new class of turkeys to be known as "yearling hens" and change the present classification "mature or old hens" to "old hen turkeys." The yearling hen class will include fully-matured birds which are usually less than 15 months old and which have been used during one season to produce hatching eggs. It is also proposed that printed labels be required to identify dressed poultry which is processed under USDA's sanitary standards. At present such identification may be made by rubber stamp.

Proposed amendments to the program would extend an earlier proposed date to June 30, 1953, after which consumer grade labeling of individual carcasses of non-eviscerated, dressed poultry (New York dressed) would be prohibited. Under present regulations, dressed poultry may be graded for quality and individual carcasses or bulk containers may bear the quality label.

Statistical quality control is convention's theme

Program of the Sixth Annual Convention of the American Society for Quality Control, to be held at Syracuse, N. Y., May 22, 23, and 24, will include a meeting devoted entirely to the application of statistical quality control methods to the problems of the food industry. Speakers will be

Stephen Harrison, Biometrician, Research Laboratories, Kraft Foods Co., and David R. Peryam, Chief, Acceptance Div., Food Laboratories, Chicago QM Depot, QM Food and Container Institute, Chicago, Ill. Moderator will be Frank F. Kinney, Assistant Technical Director, Ballantine & Sons, Newark, N. J.

Industrial Research Conference at Columbia University

Design of research operations will be the theme of the Third Annual Conference on Industrial Research to be held at Columbia University June 9-13. Sponsored by the School of Engineering and the Center for Studies of Research Administration, attendance will include research administrators from a cross-section of US industry. Program will include clinic sessions on design for research facilities, design for research management and a full day session of design for operations research.

FDA Food Standards

Fruit Preserves, Fruit Jellies, Fruit Butters. Amended standards allow up to 25% sugar content to be corn syrup and no declaration of the corn syrup is required on the label. The final order was published in the Federal Register March 26. It will become effective June 24. Final order is same as tenative order of July 20, 1951 except for editorial changes.

Exceptions to the now approved amendment were filed by the sugar industry. These were denied by the Agency. Sugar producers while agreeing to use of 25% corn syrup had urged that such syrup content be listed on the label. The final order recognizes that "dextrose" is now used in the fruit-spread trade to identify what has sometimes been called "corn sugar."

USDA Grade Standards

Checklist of new or proposed grade standards issued by Agriculture Department follows. Except where noted, complete texts can be secured from USDA, Fruit and Vegetable Branch, Processed Foods Division, Washington 25, D.C.

Fresh Peaches, proposed revised standards to replace ones in effect since 1933. Include requirement that Fancy grade show one-third of surface covered with pink, blushed or red color; addition of 15% tolerance for oversize; make tolerances applicable to peaches packed in consumer packages; rewording "standard pack" requirements to make them applicable to new packages; provide uniform color requirement for all varieties. Action pending.

Table Grapes, proposed revision of standards in effect since 1939. Would add new intermediate grade to be known as "US Extra No. 1 Grade" below US Fancy but above requirement for US No. 1. Other changes would add color and maturity requirements for new Cardinal variety and revise tolerances. Action pending.

Canned Fresh Plums, proposed revision. Among proposed changes are standards for following new varieties — purple plums, green gage, and yellow egg. Action pending.

Milled Rice, two proposed amendments requested by the rice industry. They are designed to facilitate processing and marketing of unpolished milled in grades 5 and 6.

Poultry, proposed changes. New turkey class called "yearling hens", change class "mature or old hens" to "old hen turkeys." Printed labels rather than rubber stamp, required when poultry processed under USDA's sanitary standards.

The Convention & Exhibit Schedule will be found on page 81 of this issue

When It's a Question of QUALITY,
SUGAR'S Your ANSWER!

Leading producers of preserves know that the safest way to make quality a certainty is to use 100% sugar.

They reported, in a recent survey, that the use of sugar alone produced preserves of better texture, finer flavor and more natural color.

Less trouble with crystallization and stickiness was experienced, and there was less probability of error.

In today's highly competitive market, it is well to remember that sales are less likely to slip, when *quality* is maintained with 100% *sugar!*

SUGAR
INFORMATION INC.
NEW YORK 5, NEW YORK

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Overall view of plant having capacity of 150 tons of pear waste/24-hr day. Cores, peels and trimmings as well as whole fruit dumped from truck is processed in the continuous treater (1) after grinding to a pulp in a rigid hammer mill disintegrator. Juice removed from treated pulp in a double-drum press (2) is concentrated in multiple-effect evaporators (3). Dejuiced pulp is conveyed to rotary dryer (4)

Continuous Separation of Juice from Pulp

Solves Pear Waste Disposal Problem

Ground pulp from nearby cannery being delivered to treating plant. Unground pulp is also processed at the plant

"Clothes-wringer" type of dejuicing filter press developed can be used for other wastes and might be applicable to continuous pressing of juices from sound fruits, berries, vegetables

Continuous treating tank. Lime slurry is added at a constant ratio to ground pulp in the short screw conveyor mixer at the rear, then drops to conditioning section. Blades of rotor break up the gel at one rpm

Development sumarized in this article is the result of three year's cooperative effort between scientists of the USDA's Western Regional Research Laboratory and the Canners League of California

Front and rear views of double drum filter or dejuicing press

PROBLEM: Waste at the average rate of 800 tons/day for a season lasting only two months has to be disposed in the Santa Clara area in California. Peak rate is 1600 tons/day. Only feasible way of disposing this waste heretofore was by land dumping.

In 1949, an industry-government research team undertook the development of a practical process for converting this waste into usable byproducts.

One of the characteristics of such waste, which makes processing difficult, is its gelatinous and "slimy" character. It was readily determined that addition of lime to the freshly ground pear waste facilitated separation of juice from the gelatinous mass.

Waste so treated can be squeezed in a rack-and-frame press (such as is commonly used for apple juice) to produce a clear juice and a pulp which can be dried without difficulty. This juice after concentrating to a molasses and the dried pulp are suitable for animal feeds.

Costs for conducting a large scale process, according to

the batchwise steps determined in the laboratory, however, were too high to justify its use. Furthermore, wide variations in the character of the pear waste during the season required constant adjustment of the processing steps.

Solution: Two more years of investigation in the laboratory and pilot plant culminated in the demonstration of a practical process. Two new steps in the process solve the major technical difficulty — that of economical separation of juice from pulpy residue. Process was tested in a semi-commercial unit having a capacity of 150 tons per 24-hr day.

Ground waste is now treated continuously. First, just enough lime slurry is added at a constant rate into the mixing section of the continuous treater to increase alkalinity of the waste to a pH of 8.5 to 9.0. (This is lower than the pH of 11 formerly used.) During the next 10-15 minutes, the calcium from the lime accelerates the de-esterification reaction and forms a gel structure in the waste. Continuous working of this treated material by slow moving blades (see accompanying photo) breaks up the structure into granules.

In the second half of the continuous treater, steam is injected into the moving mass to raise its temperature to 150°F. The resulting chemical and physical breakdown of the gelatinous structure is accompanied by "leaking" or by freeing of clear juice, a phenomena known as syneresis and commonly observed with day-old egg custard.

Next step is the separation of the pulp from the juice, which is also accomplished continuously. Filtering surfaces of the double-drum dejuicer press the waste as the two drums roll together, like a giant clothes wringer. Treated waste is pumped directly to a dome-like cham-

At left, storage bin for dried pear pulp. Above, pear molasses being loaded into tank trailer

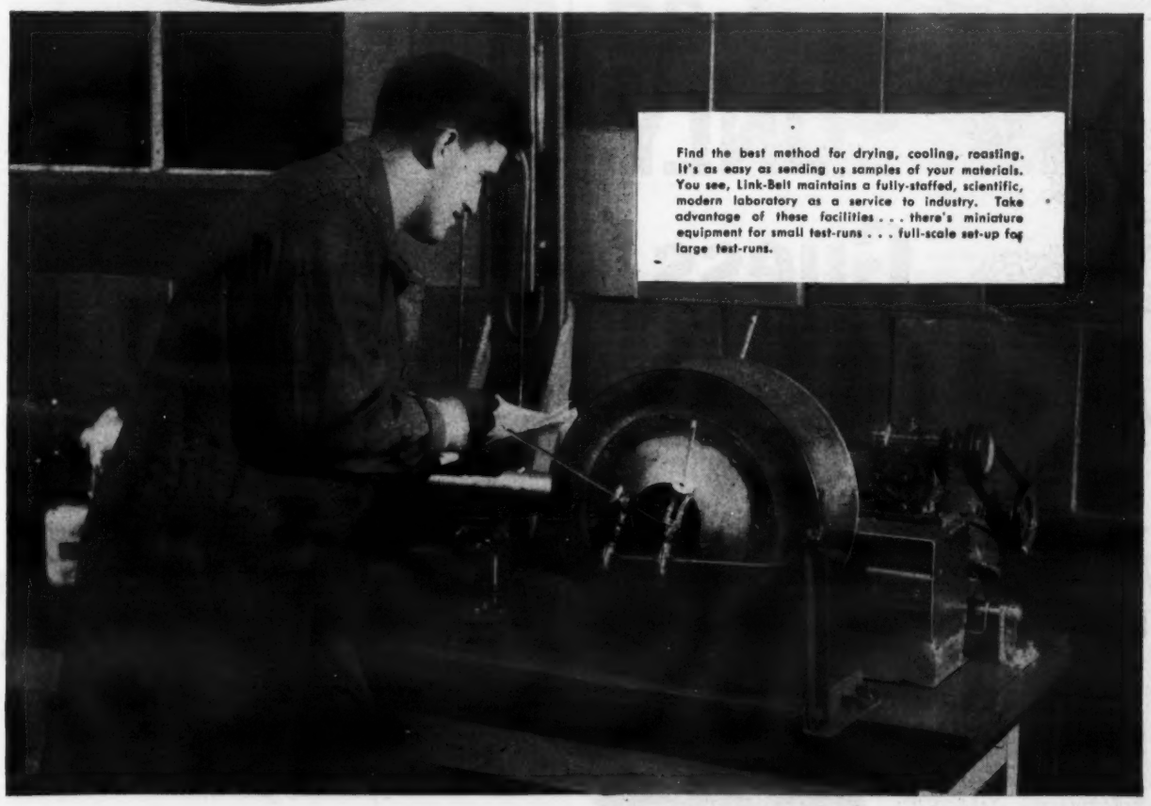
per on top of this press and maintained at a pressure of 2 to 5 psi. During a retention time of 2 to 3 minutes a filter cake about ½ inch thick is deposited on the portions of the filtering surface within the dome.

The drums, which are four feet in diameter and four feet in width, operate at a capacity of 6 tons of raw waste an hour at a drum speed of one revolution/min. Moisture content of filter cake discharged is about 75%. Pulp cake falls from between the drum rolls into a conveyor which takes it to a rotary dryer. After being

(*Continued on page* 19)

AN INVITATION to manufacturers with drying, cooling or roasting problems...

LINK-BELT will assist in developing your process


Find the best method for drying, cooling, roasting. It's as easy as sending us samples of your materials. You see, Link-Belt maintains a fully-staffed, scientific, modern laboratory as a service to industry. Take advantage of these facilities . . . there's miniature equipment for small test-runs . . . full-scale set-up for large test-runs.

Even with a small sample, we will test-run your material, work out procedures in the laboratory that can be duplicated in your plant...

Many products become marketable only after commercially practicable drying, cooling or roasting processes have been developed. That's where Link-Belt can give you the answer in advance... before you've spent a cent!

More than 1000 such laboratory tests have already been made. And as a result, 500 Link-Belt Dryers now step up capacity and improve quality of over 100 different products.

Ask for a test of your own materials. If you can't ship samples—ask for a unit on loan to try out right in your own plant. Why not contact your nearest Link-Belt office or plant for particulars? Now!

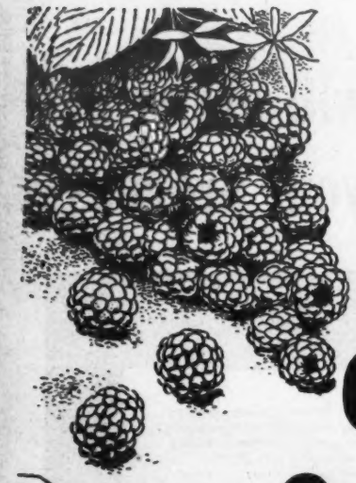
12,252

LINK-BELT

DRYERS
COOLERS
ROASTERS

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa). Offices in principal cities.

When inquiring check FP 3862 on handy form, pgs. 2-3



You Can ONLY Guess!

You cannot know the difference between the natural and the imitation by appearance, color or taste . . .

You can ONLY guess!

FLORASYNTH'S *amazing new* **RASPBERRY Imitation SPECIAL**

is rightfully compared to Nature's best . . . reflecting the sheer skill of our flavor craftsmen in its lasting, highly effective and economical utility . . . Prove its practical advantages to yourself . . .

Sample upon request.

Florasynth LABORATORIES, INC.

CHICAGO 8 • NEW YORK 61 • LOS ANGELES 13

SAN FRANCISCO 7 • SAN BERNARDINO • FT. WORTH • DETROIT 2

NEW ORLEANS 12 • MEMPHIS • CINCINNATI 2 • ST. LOUIS 2

Florasynth Labs. (Canada) Ltd. Montreal • Toronto • Vancouver • Winnipeg

Florasynth Laboratories de Mexico S.A., Mexico City

When inquiring check FP 3863 on handy form, pgs. 2-3

In Seabrook's processing operations, freshly washed and blanched limas and peas move from floor above into pneumatic separator which removes objectionable material from desired product. Machines are installed so that product moves directly to inspection table

Loose Skins, Splits, Pod Fragments Separated Pneumatically from Fresh Lima Beans, Peas at 3000 lb/hr

Seabrook Farms reduces to half, number of inspection lines and inspectors per line

PROBLEM: Top quality, frozen lima beans and peas require removal before packaging of all loose skins, splits, leaves, stems, and pod fragments. The sticky nature of green limas after washing and blanching made manual removal difficult and slowed the inspection lines at Seabrook Farms, Bridgeton, New Jersey.

Solution: Skins are now separated by means of air flotation. Units already operating in various food processing plants were separating dry products by a stream of air, according to their difference in density or specific gravity or their air-resisting characteristics. It was only necessary to apply this principle in order to handle a wet fresh product.

Rejected material is carried upward by the air stream, while the desired product is allowed to fall. A simple air control diaphragm on the machine establishes the precise nature of the desired separation, decreasing or increasing the amount of material to be removed.

The separator is made entirely of stainless steel and constructed so it is easy to keep sanitary. It has a variable feed control which, once set, insures a constant and even flow of product at the desired production line volume.

Results: Redesigned separator cut number of inspection lines in half and number of women inspectors per line in half.

Total manual labor required for the inspection job was cut in half. Capacity is now approximately 3000 lb/hr per separator.

Seabrook found lima bean quality was also improved since the machine took out many of the small fragments that the inspectors missed or could not see.

Photos accompanying this article and on the cover were taken by the Seabrook Farms' staff.

(Specifications for the Fresh Product Pneumatic Separator were furnished by Belford Seabrook and the engineering staff at Seabrook Farms. The machine was designed by C. L. Palmquist and the engineering staff of Electric Sorting Machine Company, Dept. FP, 410-44th St., S.W., Grand Rapids 8, Mich. . . . or for more information check FP 3864 on handy form, pages 2 and 3.)

What's a silicone? Booklet answers with photos, text in 32 pages

Description of various silicones and their uses are graphically illustrated in manufacturer's 32-page booklet.

Thumb-nail index provides quick access to information concerning applications and beneficial properties of silicones in polishes, water repellents, fluids, release agents, lubricants, defoamers, protective coatings, electrical insulation, and manufacturer's brand of silicone rubber.

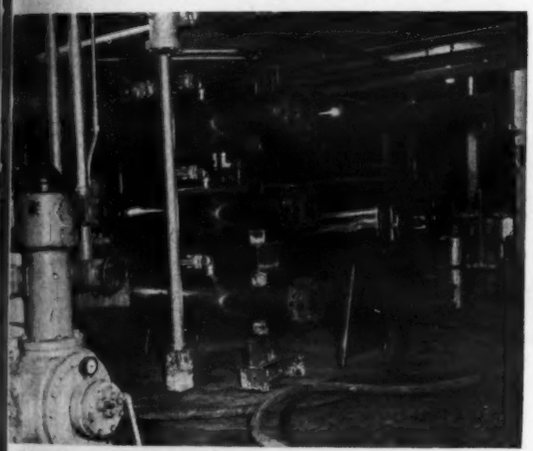
"What's a Silicone?" is issued by the Dow Corning Corporation, Dept. FP, Midland, Mich. When inquiring specify FP 3865 on handy form, pages 2 and 3.

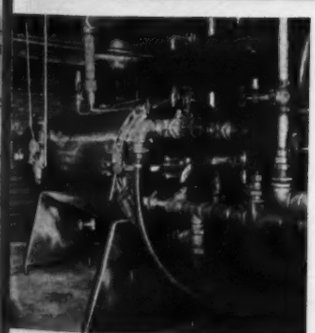
Pasteurizer Adapted for Cooling Wine Down to 22°F

Sanitary construction of unit, designed for dairy industry, makes clean-up job easy

PROBLEM: At Wine Corporation of America, wine is cooled from room temperature to 22°F, held in storage, then filtered to remove tartrates to produce the Mogen David brand wine. In the process, some tartrates are precipitated onto the tube walls of the cooler and must be removed daily since if allowed to accumulate they will reduce heat transfer.

These tartrates could be removed easily by the passage of hot (180°F) water through the tubes. However, the rubber gasket which holds the tube in the header on the





One large tube cooler (center background) takes place of three smaller units. Ammonia compressor is in foreground of above photo. Note sanitary construction of large cooler (left photo)

cooler, deteriorates at this temperature and needs regular replacement. At the low temperature, tartrate removal requires manual rodding — a laborious job.

Solution: When the production of Mogen David was moved into the new addition of the firm's Chicago plant, Chief Engineer Ed Rohrbach found a tube pasteurizer without rubber gaskets, used in the dairy industry, that could be adapted as a cooler.

In place of steam, the shell around the tubes is flooded with ammonia refrigerant at 9°F. A magnetic float switch automatically maintains the ammonia level in the shell and a back pressure valve provides accurate control of its temperature. (*Continued on next page*)

With This NEW Improvement Niagara "No-Frost Method" puts you a big step ahead in trouble-free, automatic refrigeration or freezing

Niagara "No-Frost Method" keeps frost and ice COMPLETELY OUT of your cooling, chilling, freezing or cold storage.

It uses Niagara No Frost Liquid Spray to keep frost and ice from ever forming. It gives you, automatically, refrigeration with no defrosting, and full capacity NEVER cut down by ice building up progressively on refrigeration coils.

Now, a NEW design No Frost Liquid concentrator, using a new principle, takes away moisture as fast as it is condensed by evaporating it at low temperature—not boiling it away at high temperature. It has 14 times the capacity of the old method per dollar of investment—one concentrator will handle a battery of high capacity spray coolers.

This gives you more refrigeration at lower cost; less machinery in less space. You operate at high suction pressure, saving power and wear and tear on compressors.

The extra capacity and lower cost both for equipment and operating makes this method advantageous for every type of refrigeration use—both for freezing and for moderate temperatures—for large "live" loads as in meat chilling or in fruit and vegetable pre-cooling—for rooms that are filled and emptied of product daily, such as milk rooms and terminal storage warehouses.

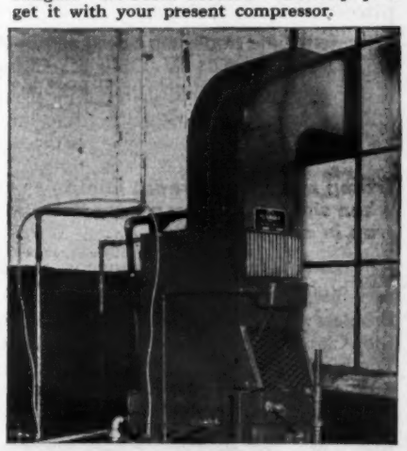
You get true trouble-free refrigeration . . . No brine . . . no salt solution . . . no dirt . . . no mess . . . It is entirely clean; you get rid of dirt and odors. You reduce both equipment and operating costs.

With Niagara "No-Frost Method" you easily keep constant temperature of products in your rooms, improve quality, get more production.

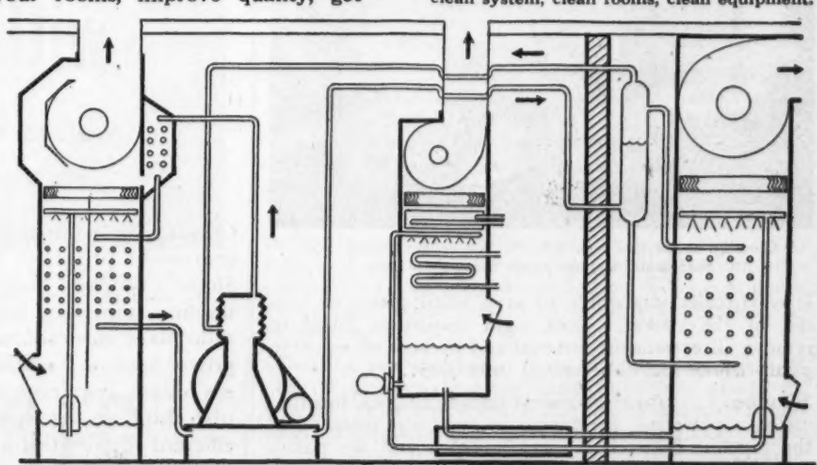
There are two series of concentrators: one, with evaporating capacity up to 6 gal. of water per hour, is economical for small freezing or hardening rooms, milk rooms, single room storage. The other, evaporating up to 36 gal. per hour, serves a battery of large coolers as in multiple floor cold storages, large chilling, freezing or pre-cooling plants.

For complete information write to the Niagara Blower Company, Dept. FP, 405 Lexington Ave., New York 17, New York.

Niagara No Frost Spray Coolers
PATENTED
With the "No-Frost Method" you always get the full amount of refrigeration your compressor will deliver and for which you are now paying. If you need extra capacity, the Niagara "No-Frost Method" can help you get it with your present compressor.



Niagara No Frost Concentrator
PATENTED
No salt solution . . . No brine . . . The Niagara "No-Frost Method" gives you a clean system, clean rooms, clean equipment.



When inquiring check FP 3866 on handy form, pgs. 2-3

(*Continued from preceding page*)

The cooler consists of 132 polished 1" stainless steel tubes 10 ft long. Each tube is rolled into stainless steel heads, and grouped six per pass. The shell is insulated with 1" glass wool and covered on the outside with stainless sheeting.

Hinged head unclamps easily and can be swung out of the way to give quick access to all tubes. All product contact surfaces are polished stainless steel, free of pits. Exterior surfaces are of smooth, all-welded design for maximum sanitation and "showroom" appearance.

Results: According to Chief Engineer Rohrbach, Mogen David wine is being cooled from 70° to as low as 22°F at 4000 gal/hr.

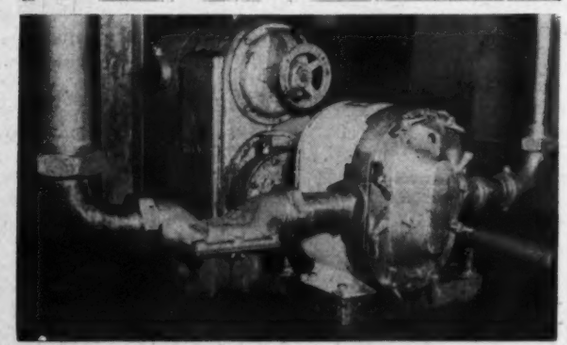
Cleaning the cooler can now be done in a few minutes. Hot water (180 to 200°F) is pumped into the tubes from a pipe within an arm's reach of its connection to the cooler and in a few minutes the tartrates are removed. Leakage of ammonia, which was commonly experienced with the other cooler, no longer occurs. The older unit, consisting of three coolers operating as one, has been placed on a standby basis.

(Internal Tube Coolers are designed by Mojonnier Bros. Co., Dept. FP, 4601 W. Ohio St., Chicago 44, Ill. . . . or for more information check FP 3867 on handy form, pages 2 and 3.)

Tramp metal can't reach pump when sidetracked by magnetic trap in applesauce line . . .

costly repairs and frequent shutdowns avoided; high quality standards protected

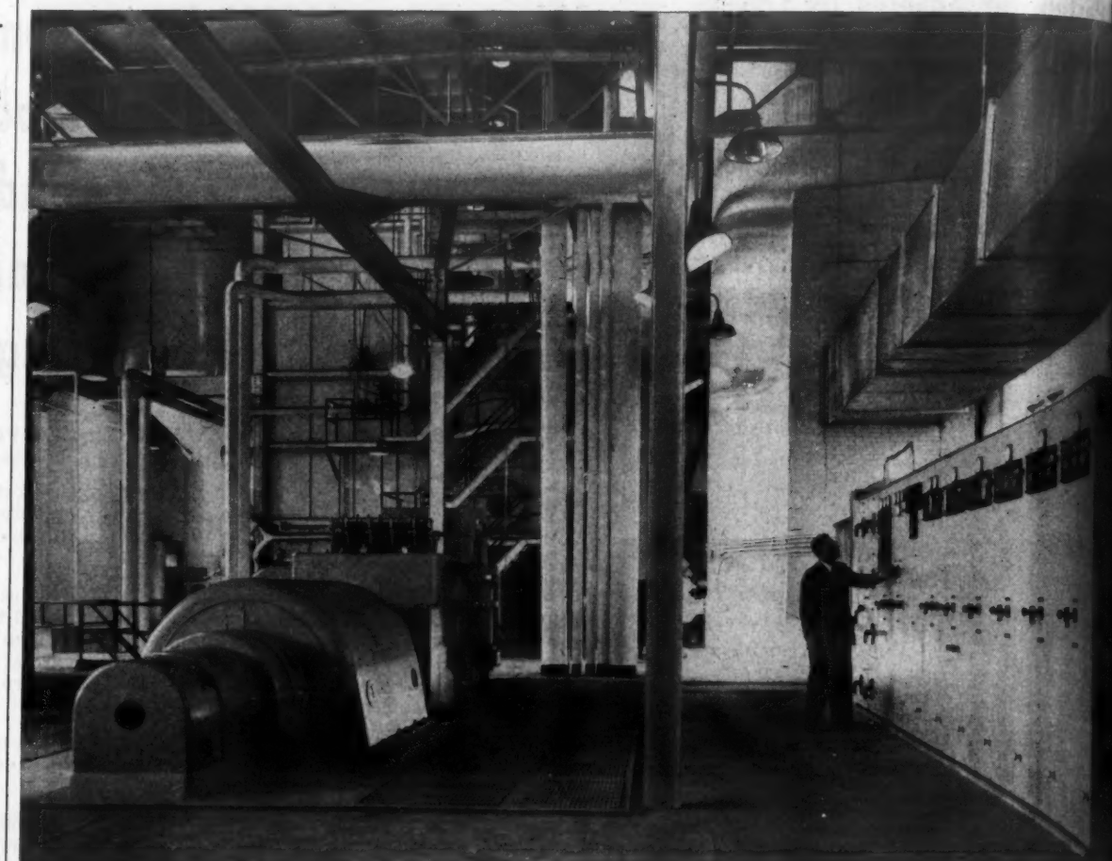
Problem: Tramp iron damage in applesauce line at the Clapp Baby Food Division of American Home Foods, Rochester, N. Y., halted production and sometimes boosted repair costs $350 to $400 weekly. Downtime resulted in loss of 150 to 200 manhours per week.



Close-up shows how trap beneath line collects tramp iron that could damage pump, cause shutdowns

It is virtually impossible to keep small pieces of iron out of the cooker. Even rigid inspection failed to remove all extraneous material and prevent its reaching pump which had clearance of only .003".

Solution: Sanitary stainless steel-faced trap, incorporating a powerful, permanent magnet, was installed in the pipeline between the apple cooker and the pump. As cooked applesauce is pumped out of the cooker, the magnet retains all the tramp iron securely. A removable plate permits easy manual removal of this tramp iron between batches. Four additional traps, installed im-



Great Western's power-house equipment comprises G-E turbine-generator set, G-E metal-clad switchgear, and new boiler (rear). G-E turbine specialists worked in close co-operation with the boiler manufacturer to assure ample power and process steam with maxim economy. Switchgear units control power distribution at 4160 volts five G-E load-center unit substations throughout the plant.

Great Western improves plant efficiency with modern G-E power system

Complete modernization program undertaken at Longmont plant to meet expanding needs for power and process steam

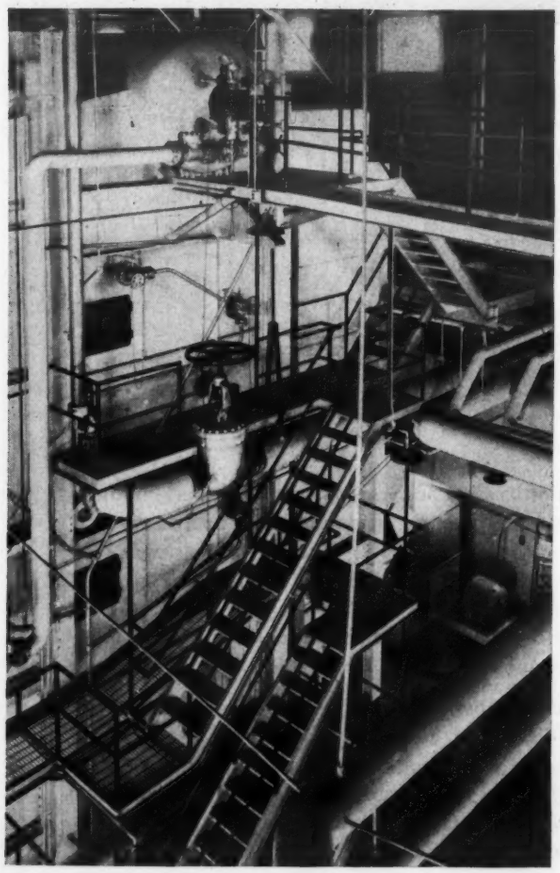
Continuing its company-wide modernization program, Great Western Sugar Company recently completed the first step at its Longmont, Colorado plant: modernization of the plant power station. To fill increased process steam requirements and to furnish high-voltage power for more efficient distribution, a new General Electric high-pressure turbine-generator set was installed, along with two modern boilers.

Modernization can increase the efficiency of *your* food plant the same way, and G-E system engineering will be an important aid. Call in your G-E food industry specialist—early in your planning. *General Electric Company, Schenectady 5, N. Y.*

New G-E Motor Course

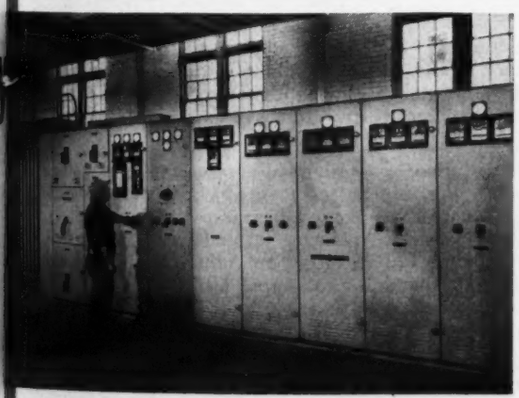
The new G-E Motor Selection and Application Course, a "Mo Power to America" program, c give your workers more mo "know-how" in 9 easy-to-le lessons. For details, send f Bulletin GEA-4938-16.

...er for entire plant is supplied economically by this 3500-kw G-E ...ine-generator set. This unit utilizes steam with high efficiency—pro-...s closer heat-balance control.



New 150,000 lb. steam boiler is one of two replacing ten formerly used. At lower right, driving the boiler draft fan, is a G-E 200 hp Tri-Clad* motor, triply protected against operating wear and tear.

*Reg. Trade-mark of General Electric Company.



...ory-assembled G-E switchgear, rated 150 MVA, was shipped as a ...rdinated unit for easy, low-cost installation. The equipment is metal-...osed for personnel protection and low maintenance.

Low-cost, mechanical power is provided by this G-E mechanical-drive turbine driving main boiler-feed pump. Hydraulic governing provides wide adjustable speed range. Standardized replacement parts keep inventory costs low.

GENERAL ELECTRIC

652-11

When inquiring check FP 3868 on handy form, pgs. 2-3

mediately ahead of the fillers, provide added protection.

Results: Frequent and expensive pump repairs eliminated.

Production interruptions and manhour losses now negligible. Most important was contribution to maintenance of high quality standard set by manufacturer. A final advantage was adaptability of trap to other processing when applesauce season was over. It was later used on tomato puree line and after that in pineapple juice canning.

(Non-electric magnetic traps are built by Eriez Mfg. Co., Dept. FP, Erie, Pa. . . . or for more information check FP 3869 on handy form, pages 2 and 3.)

Pear Waste Disposal

(*Continued from page* 15)

dried to a moisture content of 5%, it is cooled by air-conveying to storage.

Juice flows through the filtering surfaces of the de-juicing drums to the inside of each drum. It passes in part through the filtering surface after the pulp cake is discharged and acts as a backwash, conditioning the surface for the next filtering operation. Any suspended material contained in the juice as it leaves the filtering drums is removed in an overflow centrifuge. Clear juice is then pumped to a triple-effect evaporator and concentrated to a molasses.

A typical pear waste slurry, when processed, will yield about 200 lb molasses containing 70% solids and 170 lb dried pulp.

Molasses and pulp so produced have proved to be highly palatable as animal feeds. In extensive tests conducted by the University of California, the molasses appeared to be slightly superior to cane molasses, and the dried pulp was the approximate equivalent of high-grade, low protein hay.

Results: More than 1800 tons of cannery waste pulp were processed to molasses and dried pulp during the 1951 season in the semi-commercial plant. Products were readily sold for feed use.

Preliminary estimates of capital investment required, processing costs, and value of product output indicate that the processing of pear waste can be a profitable operation, even at molasses and feed prices substantially below the present market level.

As a result of this development, the Pacific Biochemical Company, a privately financed firm, has purchased the semi-commercial plant with the intention of increasing its capacity. A former waste disposal problem thus becomes solved by becoming a profitable operation.

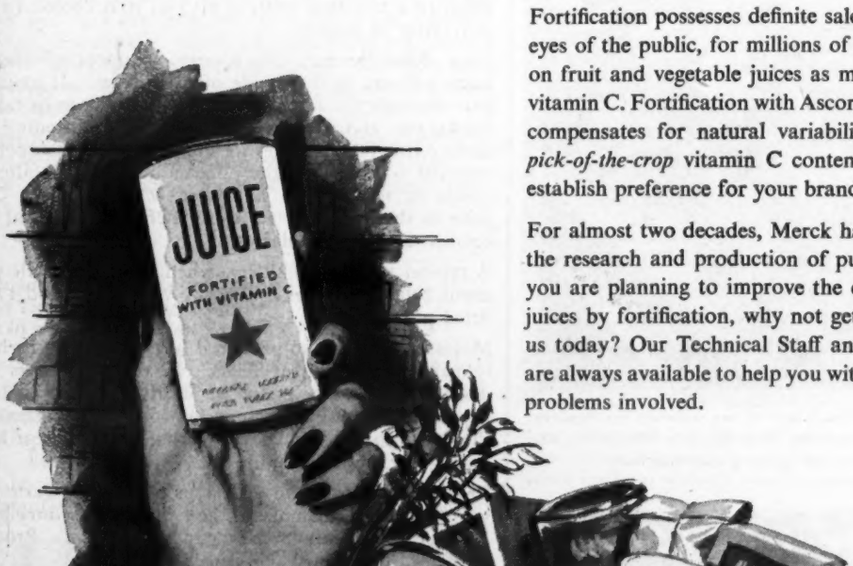
Although the project was aimed directly at pear waste, the new methods developed are adaptable to other pulpy fruits such as peaches and tomatoes. Preliminary tests have also indicated that the continuous drum filter press should have possible application to the continuous extraction of edible juice from sound fruits, berries, and vegetables.

(Detailed data on various types of operations and complete description of pear waste utilization plant, are available from the Western Regional Research Laboratory. Those who are interested in using the process on pear waste or adapting it to other processing problems should write directly to Dr. M. J. Copley, Director, Western Regional Research Laboratory, USDA, Albany, 6, California.)

For increased consumer appeal

Fortification gives your pack

"Pick-of-the-Crop" Vitamin C content



Fortification possesses definite sales appeal in the eyes of the public, for millions of Americans rely on fruit and vegetable juices as major sources of vitamin C. Fortification with Ascorbic Acid Merck compensates for natural variability and assures *pick-of-the-crop* vitamin C content, thus helping establish preference for your brand.

For almost two decades, Merck has pioneered in the research and production of pure vitamins. If you are planning to improve the quality of your juices by fortification, why not get in touch with us today? Our Technical Staff and Laboratories are always available to help you with any technical problems involved.

Ascorbic Acid (VITAMIN C) Merck U.S.P.

FOR FORTIFICATION AND PROCESSING

Research and Production for the Nation's Health

MERCK & CO., INC.
Manufacturing Chemists
RAHWAY, NEW JERSEY
In Canada: MERCK & CO. Limited—Montreal

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When inquiring check FP 3870 on handy form, pgs. 2-3

Food Ingredients

Combine enzymes, mineral salts to make bread doughs dry and pliable . . .

better toast is possible with each finished loa

Uses: Eliminates malt and yeastfood in bread baking

Features: Combines diastatic and proteolytic en zymes in addition to complex mineral salts. Supplemen enzyme activity of flour. Assures uniformity in all flou used by baker, whether un-malted, partially malted, o malted to the very optimum.

Finished loaf has improved toasting quality, more uni form appearance, smooth grain and texture, and in creased softness.

Description: Magna-Zyme is a fungal enzyme fer mentation supplement and causes a definite action upo starches and glutens. Starch is dextrinized quicke leaving the dough mellow.

The mineral salts in the ingredient aid the yeast in the fermentation process and control the variation in wate hardness, also important to fermentation.

Magna-Zyme has been planned so that there is the correct quantity of proteolytic enzyme action to contro "buckiness" in flour. Ingredient causes doughs to be dry and pliable, thus improving machining quality to a considerable degree.

(Magna-Zyme is available from Sche-Rose Corp., Dept FP, 2500 S. Ervay St., Dallas 1, Tex. . . . or for mor information check FP 3871 on handy form, pages 2 & 3.

Shortens dough fermentation for bread, rolls, donuts . . .

included in new FDA bread standards, fungal enzyme can now be marketed

Uses: Dough supplement for bread, hot rolls and raised donuts.

Features: Produces vigorous fermentation muc sooner and faster than wheat malt without adverse affecting dough or gluten character. Makes for greate loaf volume, better crumb characteristic and improve bread keeping qualities.

Description: A purified enzyme extract derived from *Aspergillus oryzae,* concentrated under vacuum and dried on a starch and dextrose base into a homogenous cream white powder. Contains natural yeast foods, vitamin riboflavin and thiamin, and minerals such as calcium and phosphate. Can supply all yeast foods necessary when used at 4 to 8 oz/100 lb of flour.

Decision to market this enzyme, which has been under development by the manufacturer for five years, follows FDA approval of tentative bread standards which in cludes this product in bread doughs. Initial studies and tests on fungal enzyme preparations were conducted by J. A. Johnson of Kansas State College and Byron S Miller, USDA.

(Two types of Mozyme, one for use in hard wheat flour other for soft wheat flour, are available from George A Jeffreys & Co., Dept. FP, Salem, Va. . . . or for mor information check FP 3872 on handy form, pages 2 & 3.

For more information on product at right, specify FP 3873 . . . see information request blank between pages 2 and 3.

Conditions baker's dough to lengthen product saleability . . .

specially-processed corn flour contains 50% protein, minimizes use of dusting flour

Uses: For baker's bread, rolls, cakes, donuts, and pie crusts.

Features: Can effect savings and enhance food value and keeping quality. When added to wheat flour, conditions or mellows the strong fibers of wheat, resulting in better sheeting, machining and flow of batter. In coffee cakes, dough will stretch easily and stay in shape without shrinking.

Cakes will have firmer and shorter texture that will be noticeable to the customer.

Description: Conditioner is a specially processed, high-protein corn flour. Contains about 50% protein.

Easy to handle and can be simply added to baker's present formulas without additional cost. Hardly any dusting flour is needed where mechanical make-up equipment is used for products such as rolls. In making yeast-raised donuts, a minimum of dusting flour will keep down sludging and discoloration of frying fats.

(Dough conditioner, called Glorize, was developed by National Starch Products, Dept. FP, 270 Madison Ave., New York 16, N. Y. . . . or for more information check FP 3874 on handy form, pages 2 and 3.)

How to enhance natural flavor of canned products

Containing twenty technical data sheets, this 26-page booklet gives specific applications for monosodium glutamate (MSG) and hydrolysed vegetable protein (HVP). Chili, ravioli, spaghetti, hamburger, a number of beef and chicken preparations, and several condensed soups are among the products for which definite recommendations are offered. Label requirements are also given.

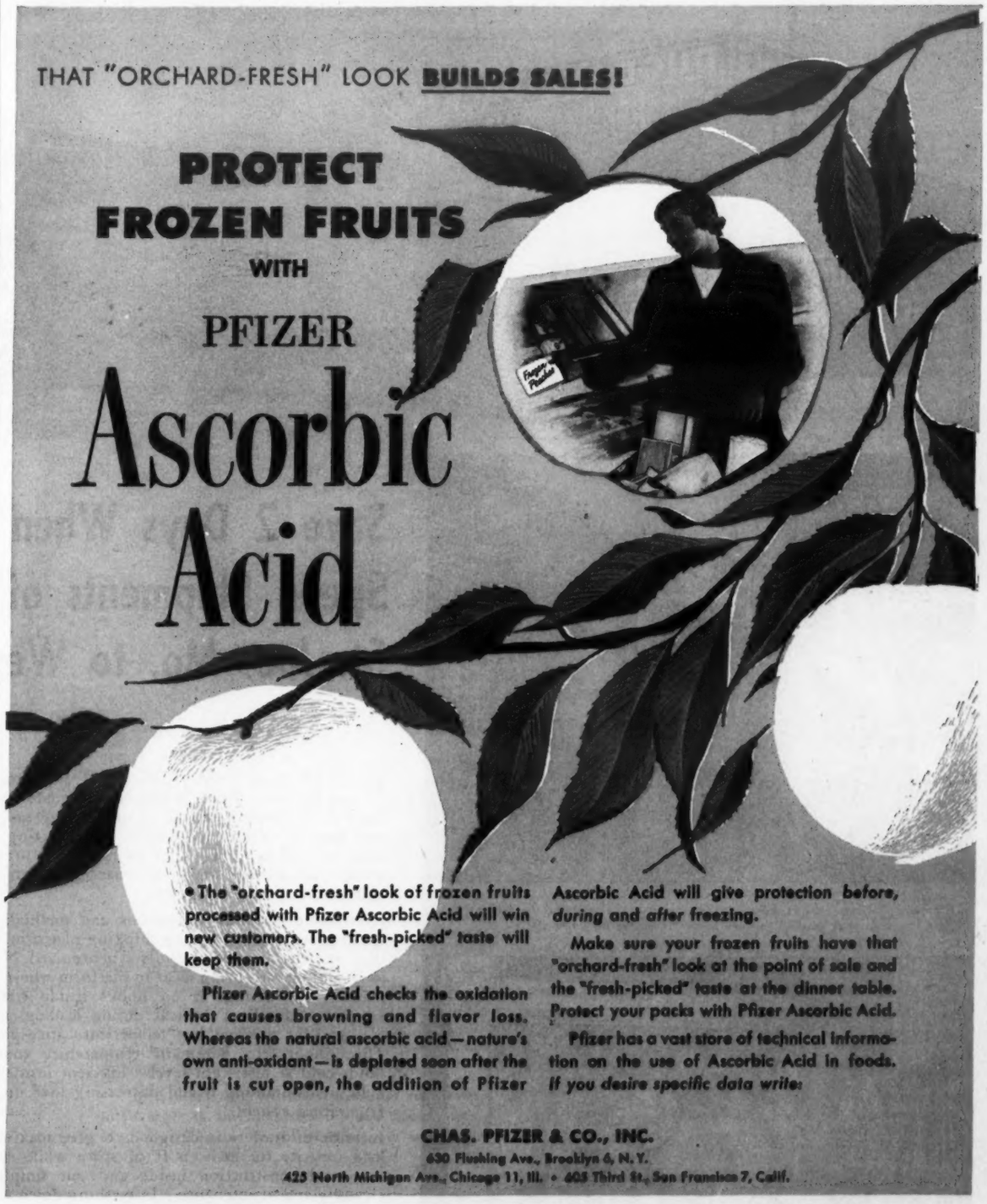
The first three pages discuss where MSG and HVP should or should not be used. Of interest are results of tests in which 0.5-1.25% MSG was added to No. 10 canned vegetables. The vegetables were stored for a long period of time and held for two hours on a steam table. More than 90% of those who sampled them preferred them to untreated canned vegetables.

"Huron MSG for the Canner," is issued by The Huron Milling Co., Dept. FP, 9 Park Place, New York 7, N. Y. When inquiring specify FP 3875 on handy form, pages 2 and 3.

Making Cheddar cheese from pasteurized milk

Well-illustrated bulletin on how to make American Cheddar cheese from pasteurized milk. Discusses equipment, pasteurization, starters and a manufacturing procedure which is successful in many factories. This procedure is known as the time-schedule method, precision cheesemaking, or making cheese by the clock. Information can be a guide to where installation of a pasteurizer is being considered.

This 39-page USDA Circular No. 880 "Making American Cheddar Cheese of Uniformly Good Quality from Pasturized Milk" by H. R. Lochry and associates is available for 20c from Supt. of Documents, US Government Printing Office, Washington 25, D.C.


THAT "ORCHARD-FRESH" LOOK BUILDS SALES!
PROTECT FROZEN FRUITS WITH PFIZER
Ascorbic Acid
• The "orchard-fresh" look of frozen fruits processed with Pfizer Ascorbic Acid will win new customers. The "fresh-picked" taste will keep them.
Pfizer Ascorbic Acid checks the oxidation that causes browning and flavor loss. Whereas the natural ascorbic acid—nature's own anti-oxidant—is depleted soon after the fruit is cut open, the addition of Pfizer Ascorbic Acid will give protection before, during and after freezing.
Make sure your frozen fruits have that "orchard-fresh" look at the point of sale and the "fresh-picked" taste at the dinner table. Protect your packs with Pfizer Ascorbic Acid.
Pfizer has a vast store of technical information on the use of Ascorbic Acid in foods. If you desire specific data write:
CHAS. PFIZER & CO., INC.
630 Flushing Ave., Brooklyn 6, N.Y.
425 North Michigan Ave., Chicago 11, Ill. • 605 Third St., San Francisco 7, Calif.

Manufacturing Chemists for Over 100 Years PFIZER

When inquiring check FP 3876 on handy form, pgs. 2-3

Stainless steel trailers ready for fast run from St. Joseph, Mo. to West Coast

Efficient temperature control eliminates spoilage; stainless steel construction simplifies cleaning and maintenance

Save 2 Days When Refrigerated Trailers Speed Shipments of Fresh Meats from St. Joe, Mo. to West Coast

FASTER cross country delivery of fresh meats was the main factor which led Dugdale Packing Co., St. Joseph, Mo. to secure and operate its own fleet of refrigerated trailers. In selecting the most suitable type of trailer units and setting up system for loading and maintenance, various requirements were anticipated.

First, basic handling operations and methods of moving meat from plant to shipping platform and then into trailer were carefully synchronized. Now, longitudinal rails bring meat to platform where the loading crew hangs it on hooks inside trailer. except for this brief interval during loading, meat is always in required low temperature atmosphere. Throughout trip, automatic temperature control holds cold at just right level. Efficient insulation aids in maintaining it and decreasing load on refrigerating system.

Interior of trailers is designed to give maximum load capacity for each cu ft of space while stainless steel construction inside and out simplifies cleaning and maintenance. In washing down trailers at end of trip, hosing is about all that is required to remove road dust and dirt. There is never any rust or corrosion.

Increased tire life is achieved with "gravity tandem suspension." This is mainly due to the steering action of this assembly. With the more common type of spring suspension the entire underconstruction can be out of line from 1 to 1½" in rounding a bend in a road, causing the wheels to scuff on the curve. This grinds down the tires. Tires on these trailers that have traveled 100,000 miles are still capable of more dependable service.

Stainless steel surface quickly freed of road dust and dirt by hosing and stays clean longer

Al G. Kersnick, fleet superintendent says: "Not only have trailers speeded up deliveries, saving us two full days to the West Coast, but their efficient temperature control has eliminated spoilage."

(Stainless steel refrigerated trailers are built by the Fruehauf Trailer Co., Dept. FP, Detroit 32, Mich. . . . or for more information check FP 387 on handy form, pages 2 and 3.

Sliding Gates Divide Box Cars Into Compartments, Prevent Shifting of LCL Shipments

Partitions locked snugly against loads to protect cased foods, other fragile products, in transit

INDIVIDUAL compartments for LCL shipments are provided in specially designed box cars that after extensive tests are now in regular service on the Western Pacific Railroad. As gates, which form partitions to seal off different shipments, can be fitted snugly against load and locked, cargo cannot shift during transit. Mixing of lading is eliminated and loading and unloading is speeded up.

Box car, itself is the conventional steel type, provided with adjustable steel gates, usually two pairs to a car. Each gate is pivotally mounted to a vertical member carried

Gates fold back until LCL shipment is loaded, are then swung into place and locked securely

After gates are locked against ladings at each end of car, center area is loaded to make-up third compartment

by a trolley which travels along a longitudinal track installed near the roof and running the full length of the car.

With gates opened, freight is loaded into one end of the

(*Continued on page 31*)

Halt flour infestation with Sealed-System Mill-to-Mixer Handling

Fuller's "Engineered-Flow" method of handling bulk flour in the bakery, not only assures substantial handling economies at volumes of two carloads a week and more; it is now recognized as economically feasible, even for much smaller volumes, because it virtually eliminates the in-plant infestation caused by outmoded, obsolete conveying equipment.

Until recently limited to experimental installations in a few plants, this method of full-bulk flour handling is now a realizable dream of efficiency, safety, and long-term economy for all but the smallest bakers.

As pioneers of this new, modern method, the manufacturers of the Airveyor and F-H Airslide Conveyor, are able to offer you best advice on the lowest-cost-per-ton adaptation of air to your particular handling requirements.

Write to Fuller Company for full particulars on its increasingly popular application of proved air-veyance principles to the field of modern mill and bakery practice.

DRY MATERIAL CONVEYING SYSTEMS AND COOLERS—
COMPRESSORS AND VACUUM PUMPS—
FEEDERS AND ASSOCIATED EQUIPMENT

Fuller

FULLER COMPANY, Catasauqua, Pa.
Chicago 3 • 120 So. LaSalle St.
San Francisco 4 • 420 Chancery Bldg.

A-134

When inquiring check FP 3878 on handy form, pgs. 2-3

More of industry's tough jobs go to YALE because...

EXCLUSIVE Features Equip YALE Electric Trucks For 'round-the-clock service

BECAUSE YALE Electric Trucks pay their way *better* by working *harder*—they're the first choice of users who want the *most* for their truck dollars. To discover how a YALE Electric Truck investment can accumulate *extra* handling savings for you—fill out and mail this coupon today.

YALE is a registered trade mark of The Yale & Towne Mfg. Co.

- **EXCLUSIVE YALE** Hypoid Gears have more tooth surface for longer wear, greater shock resistance. They're completely enclosed in one oil-sealed unit.
- **EXCLUSIVE YALE** Involute Spline Drive Shaft resists fracture from wear fatigue—outlasts all others.
- **EXCLUSIVE YALE** Lift Channels are specially rolled for extra strength. Ball bearing rollers reduce channel wear, cut battery drain due to friction.
- **EASY ACCESSIBILITY** to battery permits rapid battery changes for recharging.

YALE & TOWNE

The Yale & Towne Manufacturing Co., Dept. 105
Roosevelt Boulevard & Haldeman Ave., Philadelphia 15, Pa.
Please send me your free new detailed bulletin, THE YALE ELECTRIC TRUCK

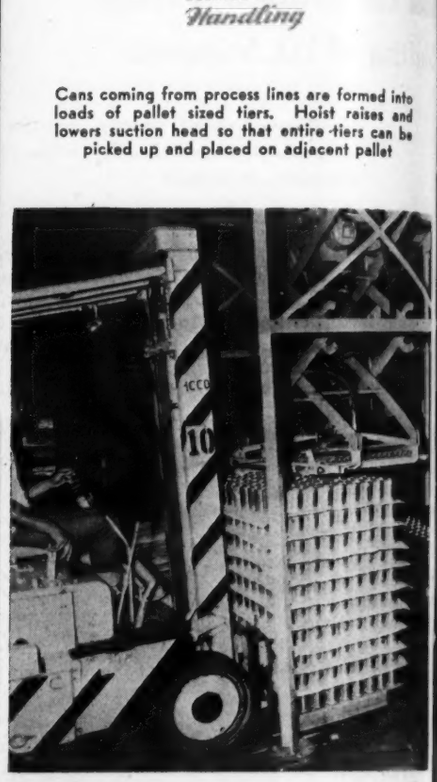
Company_____
Name_____ Title_____
Street_____
City_____ State_____
In Canada write: The Yale & Towne Mfg. Co., St. Catharines, Ont.

YALE GAS TRUCKS • YALE WORKSAVERS
YALE HAND TRUCKS • YALE HAND AND ELECTRIC HOISTS

When inquiring check FP 3879 on handy form, pgs. 2-3

Material Handling

Cans coming from process lines are formed into loads of pallet sized tiers. Hoist raises and lowers suction head so that entire tiers can be picked up and placed on adjacent pallet



Hawaiian Canneries Speed Palletizing, De-palletizing Also Increase Storage Space

Suction type handlers load entire tiers of No. 1 cans at rate of 300 per minute and unload them at rate of 1000 per minute

When pallet is fully loaded, truck picks it up, moves it to warehouse. Paper inserts bind load together, absorb fluid from "leakers"

"Bright" cans brought from warehouse for labeling and casing are picked up by suction head of de-palletizer. Cans are swung over to belt leading to the converger

PROBLEM: Because of the manpower and time involved, Hawaiian Canneries, Inc., Kauai, Hawaii, directed particular attention to handling of bright cans when making an overall effort to reduce costs. Operations involve mass movement of bright cans from process lines to storage and subsequent transfer from storage to labeling. Can sizes that must be handled include No. 1, 2, 2¼, 3, 211, 8 oz and No. 10, all used for pineapple products.

The company decided to design its own system that would be largely automatic and designed to speed and simplify two basic steps: 1) palletizing cans after cooling and then storing them, and 2) de-palletizing bright cans as they are brought from warehouse for labeling and casing.

Solution: Two basic units comprise the system. The palletizing unit utilizes a chain and frame assembly as a load forming device which arranges the cans in pattern as they come from processing line (see photo). Suction head of palletizing unit is suspended so that it can swing over load tier when it is formed, pick it up and lower it on nearby pallet. Tier after tier of cans can thus be picked up and placed on pallet until load is complete and ready to be picked up by fork truck (see photo). It will be noted that Kraft paper inserts have been placed between tiers. These "bind" the load together, absorb fluid from "leakers" and prevent spoilage of entire stack.

The suction head is provided with numerous vacuum cups, all of which are controlled through a single manifold connected to a vacuum pump.

When cans are to be de-palletized for labeling and casing, pallets of bright cans are moved by fork truck to the de-palletizing unit. This de-palletizing device also utilizes a suction head, which unloads cans a tier at a time, placing each tier on moving belt conveyor. Cans are swept into a 48" disc converger, from which they emerge in single file ready for labeling.

Results: Palletizing speeds of as high as 300 cans per minute and de-palletizing at rate of 1000 cans per minute are possible with this equipment. All sizes of cans are easily handled at similar speeds in proportion to actual can size. For example, No. 1 flat cans are palletized 108 to each tier with average pallet load being 20 tiers. Time and labor of warehouse operations are decreased while warehouse space is "expanded." No space is lost by storing individual trays holding a limited number of cans. Both palletizer and de-palletizer units are simple to operate. Hawaiian Canneries has easily integrated 13 palletizers and 4 de-palletizers into processing or packaging lines. They have been kept operating steadily with a minimum of maintenance.

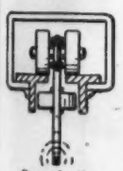
(Palletizing and de-palletizing units described here are now built by Standard-Knapp Div., Emhart Mfg. Co., Dept. FP, Portland, Conn., (also builder of the disc-converger) or for more information check FP 3880 on handy form, pages 2 and 3.)

Route of overhead conveyor includes sharp "up-curves" and vertical dips . . .

Trolleys are on 12" centers; tendency of chain to rock trolleys avoided

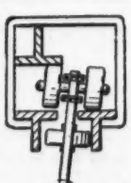
USES: For use in fabrication, assembly and finishing operations.

Features: Conveyor employs a construction having trolleys with two vertical wheels and a single horizontal wheel, with successive trolleys connected together by a heavy roller chain. Track consists of two spaced parallel T-bars with a vertical wheel carried on each T-bar and the horizontal wheel running between them and in contact with the inside bar on a turn so as to give the chain and trolleys full rolling contact with the track at all times without the aid of roller or traction wheel turns.



Cross Section of Straight Track

On vertical turns, two additional T-bars are placed above the other two and the rollers maintain a full contact between upper or lower sets of bars depending upon whether it is an up or down run. This full rolling contact at all times creates a very low chain pull for a given loading which reduces power consumption, permits lower powered installations to do the work usually requiring higher powered equipment.

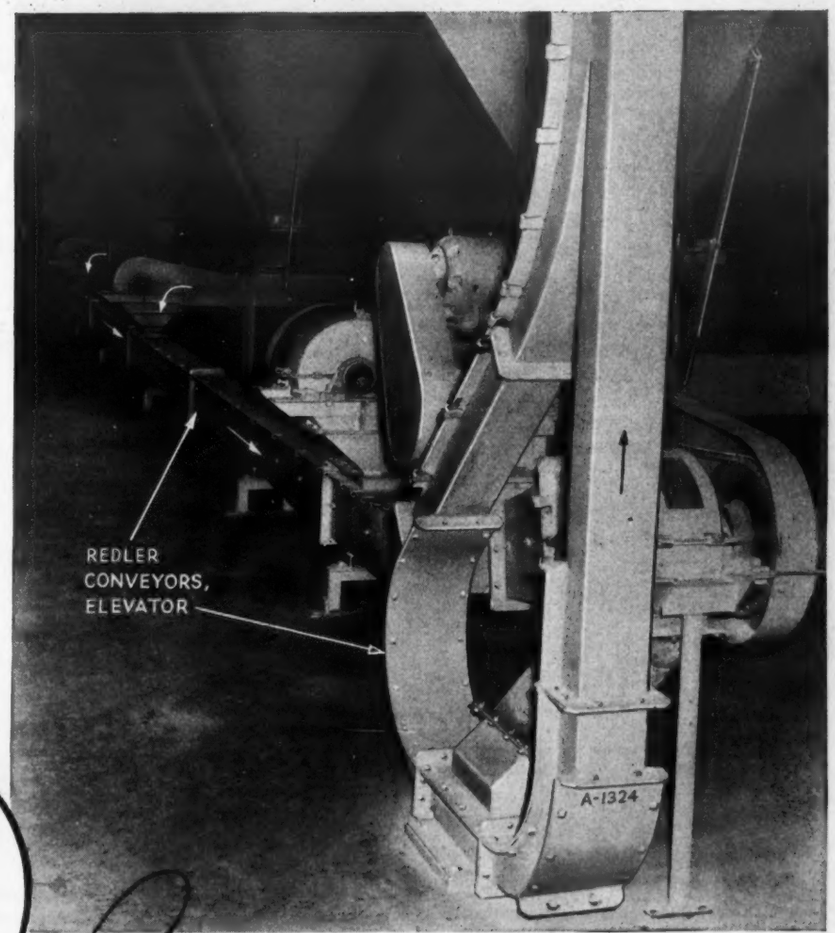


Cross Section of Turn

Flexible construction permits this conveyor to make sharp turns in both vertical and horizontal directions, to twist around existing obstructions and run from floor to floor. Typical of applications where this space saving is advantageous are paint finishing and degreasing.

(*Continued on page* 30)

Completely mechanical grain storage and reclaim system consisting of ten REDLER Conveyors and Elevators. Three horizontal REDLERS are shown drawing grains from storage and delivering to cross conveyor. Grains are lifted to a scale hopper several floors above.



Vibrating Conveyors
Belt Conveyors
Screw Conveyors
Bucket Elevators
Pan Conveyors
Vibrating Screens
Bin Gates, All Types
REDLER Conveyor-Elevators

S-A

ZIPPER Conveyor-Elevators
Circular Bin Dischargers
Centrifugal Loaders & Pilers
TELLEVEL Bin Level Controls
SEALMASTER Ball Bearing Units

Write for bulletins on any of the above

CONVEYING *Systems* speed Food Products Handling!

in compact REDLER Conveyors and Elevators

without Dust or Contamination

"This particular problem was to design and install a handling system for moving grain speedily—without dust or contamination and in minimum space. S-A engineers came up with the right answer—and the right equipment!

But this is only one of hundreds of S-A installations, all designed to meet specific requirements. From coast-to-coast, S-A specialized experience, dating back for more than half a century, but in tune with today and tomorrow, is helping in the solution of bulk material handling problems.

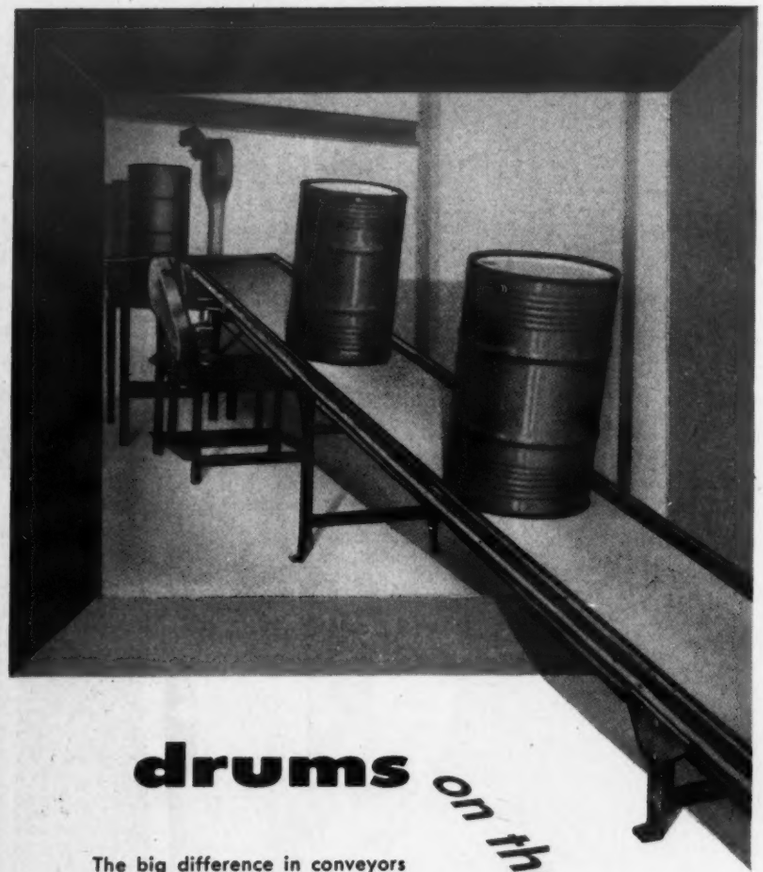
If *you* have a materials handling problem, we will be pleased to consult with you. Just write—we'll send complete information.

STEPHEN S-A DAMSON MFG. CO.

17 Ridgeway Avenue, Aurora, Illinois — Los Angeles, Calif., Belleville, Ontario

DESIGNERS AND MANUFACTURERS OF ALL TYPES OF BULK MATERIALS HANDLING EQUIPMENT

When inquiring check FP 3881 on handy form, pgs. 2-3



drums *on their way...*

The big difference in conveyors for special services lies in their suitability for the job.

Alvey builds Drum Handling Conveyors especially suited for transporting between departments, filling and weighing, for storage magazines; reciprocators and lifts, too.

Write Alvey today.

ALVEY

CONVEYOR MFG. CO.
9307 Olive St. Road
St. Louis 24, Mo.

When inquiring check FP 3882 on handy form, pgs. 2-3

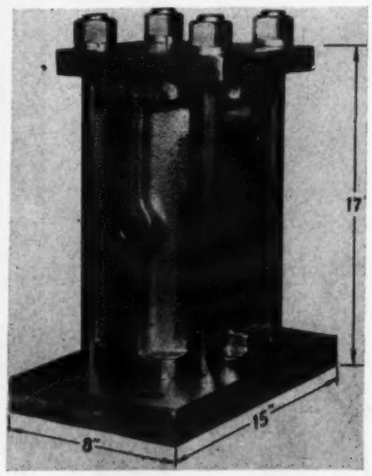
Keeps maintenance down and lengthens life of vibrator . . .

longer amplitude reaction secured with extra-long piston stroke

Uses: For use on large storage bins with capacity of 75 tons or more.

Features: Air-cushioned operation of 5" vibrator eliminates pounding.

Description: Vibrator weighs 180 lb; 55 lb piston has stroke of 1⅜" and operates at maximum rate of 650 strokes per min at an operating pressure of 80 psi. Body has hard, chrome-plated wall. Hardened steel piston is centerless ground to precision tolerances. Mounting plate has slotted bolts for easy, quick mounting.



(EM-5-QH pneumatic vibrator developed by Cannon Vibrator Company, Dept. FP, 1111 Power Ave., Cleveland 14, Ohio . . . or for more information check FP 3883 on handy form, pages 2 and 3.)

Explains pallet rollers' special features

Four-page, two-color, illustrated brochure describes manufacturer's pallet rollers in three styles: Stevedore, Reefer, and Swivel. Specifications are given for each. Features of the rollers as listed by the brochure are: 1) large diameter rolls, 2) crowned ends for floor protection and free rolling, 3) "dead" large hexagon axles, cotter-keyed in frame for easy service so that only the bearings can turn, and 4) heavy-duty ball bearings, fully lubricated.

Bul 102 is issued by the Frank L. Robinson Co., Dept. FP, Latham Square Bldg., 508 16th St., Oakland, Calif. When inquiring specify FP 3884 on handy form, pages 2 and 3.

Because they wear longer...stand up better to the destructive effects of heat, abrasion, corrosion and chemical action, Wissco Metal Processing Belts have become the accepted standard for varied applications involving processing and heat treating.

They're your assurance of uninterrupted trouble-free production at a time when stoppages cannot be tolerated.

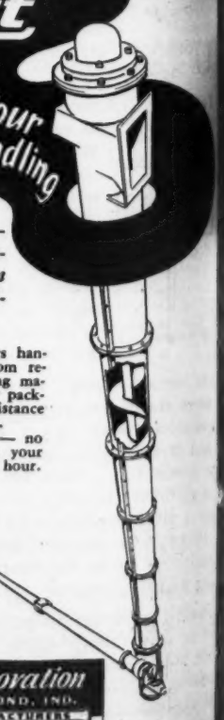
For additional information write or phone our nearest sales office.

EAST: Wickwire Spencer Steel Division, Clinton, Mass.
WEST: The Colorado Fuel & Iron Corporation, Denver, Colorado
PACIFIC COAST: The California Wire Cloth Corporation, Oakland, California

WISSCO BELTS
PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION
CF&I

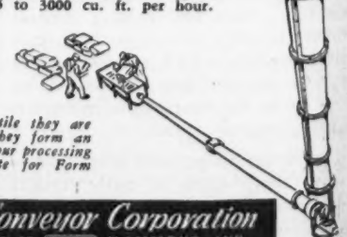
When inquiring check FP 3885 on handy form, pgs. 2-3

Screw-Lift
Will Untangle The Snarls In Your Bulk Material Handling



You can cut handling costs — Speed up work — prevent delays — simplify production flow — by installing "HAMMOND" Screw-Lifts.

These ruggedly built tubular Conveyors handle any free-flowing bulk material from receiving point to storage or to processing machines and then to automatic scales for packaging or bagging. They convey any distance horizontally and to any practical height. No exposure — no dust — no noise — no contamination. Built in sizes to suit your capacity from 75 to 3000 cu. ft. per hour.



Learn how versatile they are — how nicely they form an integral part of your processing procedure. Write for Form M-500-2.

Screw Conveyor Corporation
701 HOLEMAN ST. HAMMOND HAMMOND, IND.
ENGINEERS PRODUCTS MANUFACTURERS

When inquiring check FP 3886 on handy form, pgs. 2-3

No gear shifting or clutching for drivers when trucks have automatic transmissions . . .

use of parking brake and accelerator suffice to make "stop-and-go" route operation easier job

Three speeds for city driving, with four for suburban travel, are provided by the dual-range Hydra-Matic drive that is standard equipment on a panel delivery truck recently introduced. Gear shifting and clutching are not necessary. Along with the transmission, a foot-operated parking brake with finger-tip release simplifies driving to such an extent that only a tap of the foot is needed to stop the unit, while touching release lever and pushing on accelerator gets truck moving again. This combination provides a "stop-and-go" vehicle with simplicity of operation that is welcomed by route drivers.

Panel body has 350 cu ft capacity

Engine is 6 cylinder, 100 hp with 6.75 to 1 compression ratio. Hydra-Matic transmission eliminates complex control linkages. Hydraulic coupling prevents shock loading of transmission, drive line and rear axle contributing to reduced maintenance costs. Control lever (see illustration) assures finger-tip selection of neutral, reverse and any of forward speed ranges. Positive stop prevents accidental shift into reverse position. Clearly visible indicator shows control lever position at all times.

Automatic transmission is feature of ¾ ton truck. Indicator shows control lever position

Forward mounting of transmission brake and steering control provides greatly increased load space. Wide track front axle is specifically designed to accommodate wider bodies and achieve sharper turn angle used on this forward control chassis. Body is Montpelier forward control type. Load compartment dimensions are: length 120″, width 72″, height at center 72″. Capacity is 350 cu ft.

Nominal rating is ¾ ton, gross vehicle weight is 7000 lb. Wheelbase is 125¼″ and overall length 195¼″.

(P-150-22 truck is built by General Motors Truck & Coach Division, General Motors Corp., Pontiac, Mich. . . . or for more information check FP 3887 on handy form, pages 2 and 3.)

ELWELL-PARKER Trucks

reduce man-hours 75%

utilize all storage space

provide fume-free food protection

CASE HISTORY IN FOOD

SAVING COSTLY LABOR — In this cold storage plant, four Elwell-Parkers plus operators do as much work as 16 men did by manual means . . . Here truck is storing pallet load of 50-pound sacks of onions. This Elwell-Parker, plus two men who work in freight cars palletizing the sacks, unloads and stores *four carloads* of onions in eight hours.

CHANGING SQUARE FEET TO CUBIC FEET — By assembling these crates of apples in master unit loads and high stacking them, all air conditioned space is profitably utilized. Besides achieving *roof-high* storage at *low-level* costs, there is greater order and all materials are quickly accessible.

SAFEGUARDING PERISHABLE FOODS — Contamination is impossible because these Elwell-Parkers have fume-free electric battery power. Here palletized racks of fish are rushed into cold freezer, so that doors are opened for shorter periods. Elwell-Parker's ease of control assures perfect spotting of load on this castered rack.

BIG BENEFITS LIKE THESE are being made by Elwell-Parkers in *every* phase of the food industry—procurement, processing and distribution. For specific counsel about your needs, ask us to send your nearby man . . . He is backed by Elwell-Parker's more than 45 years' experience that has solved hundreds of food handling problems. The Elwell-Parker Electirc Company, 4182 St. Clair Ave., Cleveland 3, O.

FREE BOOKLET *on Food Handling. Write for "Industrial Logistics in Food."*

ELWELL-PARKER
POWER INDUSTRIAL TRUCKS
Established 1893

When inquiring check FP 3888 on handy form, pgs. 2-3

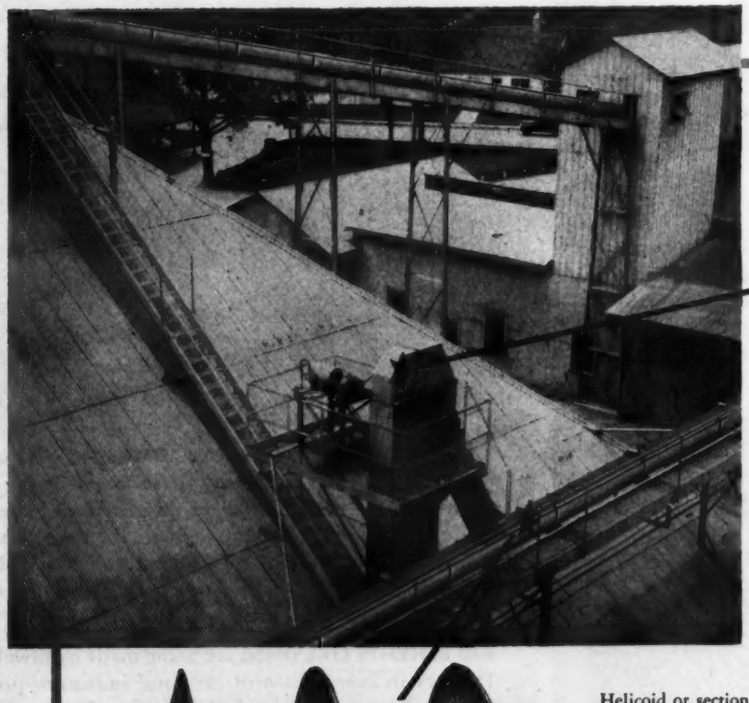
Industry's BEST SOURCE for Bucket Elevators and Screw Conveyors

LINK-BELT offers you the most diversified line of both... plus wide engineering experience

Get the right bucket elevators and screw conveyors for your requirements. Actually, it may be simpler than you think. For, whether your material is sticky . . . friable . . . hot . . . or abrasive — there's a Link-Belt design to move it with the highest possible efficiency.

Link-Belt builds many types and sizes of enclosed conveying equipment — the *widest range* of bucket elevators, screw conveyors and Bulk-Flo elevator-conveyors. And all are accurately made to assure smooth operation, long life.

Take advantage of Link-Belt's quality line and materials handling experience. Our engineers will be glad to help you come up with the right answers to your conveying and elevating needs.



Continuous bucket elevator delivers high capacities at lower speeds. Ideal for friable materials.

Two Link-Belt Screw Conveyors and a Link-Belt Bucket Elevator move large volumes of cottonseed at an Illinois oil mill.

Helicoid or sectional conveyor screws—for general screw conveyor applications—may also be furnished in the metal and finish best suited to your purpose and with components selected from the most complete line.

LINK-BELT

BUCKET ELEVATORS and SCREW CONVEYORS

LINK-BELT COMPANY: Chicago 8, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa). Offices in principal cities. 12,350-A

When inquiring check FP 3889 on handy form, pgs. 2-3

(*Continued from page* 27)

Description: Designed primarily for light to medi loading, trolleys being placed on 12½" centers. U of ordinary T-bars for track and elimination of roll turns results in lower cost installations.

loads or racks may be used to carry large numbers small items for assembly, spraying, dipping, or curi Load bars may be placed between trolleys to carry doub

Of related interest is the simple transfer, developed this same company, for moving loads of all types off overhead conveyors, and moving the loads up, down to one side. It also either returns loads to the sa conveyor or to some other point. This saves much pla space by eliminating long approaches into tanks a long up runs.

The transfer can take many different forms and c be applied to any chain or table type of conveyor even belt conveyors. It consists of work carriers any desired shape supported by load bars which are turn supported by the conveyor.

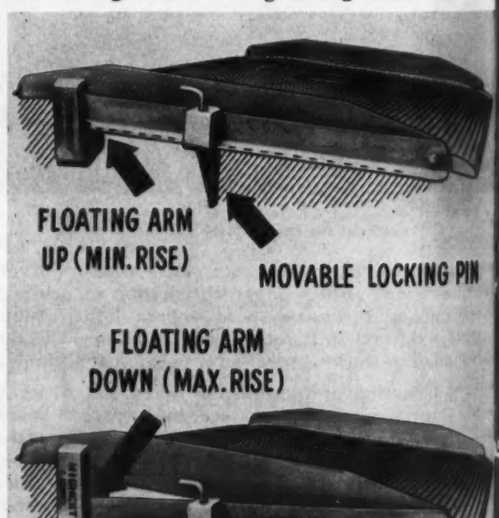
("Econ-o-veyor" and transfer are developments Shuler Conveyors, Inc., Dept. FP, 43 Hutchinson Plac Lynbrook, N. Y. . . . or for more information chec FP 3890 on handy form, pages 2 and 3.)

Firm anchoring of loading ramp assured when locking pins are integral with floating arm . . .

ramps of 15,000 lb load capacity are easily move placed by one man with fork truck

Uses: Designed primarily for use with fork truc in handling loads at railroad sidings and adaptable f wide range of similar applications.

Features: Locking device of ramp has been improve The re-designed self-leveling locking device and floati



Ramp locking pin travels along floating arm

arm offer several advantages over previous locking devi In the case of the latter, chain pins were inserted into mul holed floating arms when the ramp was positioned so th

lifting of ramp would be prevented. Now, locking pins are an integral part of the floating arm locking bar which travels back and forth, in its own housing along the floating arm and secures ramp by butting-up firmly against loading platform.

Description: Ramps are made in types and sizes to span gaps from 5 to 58" with differential in height up to 7". Riding surface is non-slip steel plate, reinforced with shock plates at corners. Side stringers add rigidity and act as safety guard. Transported to location between platform and car or trailer, or between similar points on the forks of any lift truck, ramp can be easily set in place. Lift handles drop into place, providing a flush riding surface. Patented sleeve permits the floating arms to rest flat on the lowest or highest levels, for 90° angle bearing of the locking device against the platform.

"One Man Bridge Ramp" is built by the Elizabeth Iron Works, Inc., Dept. FP, PO Box 360, Elizabeth, N. J. . . . or for more information check FP 3891 on handy form, pages 2 and 3.)

Electric power drives, controls explained in 8-page bulletin

A simplified, easy-to-read, non-technical explanation of manufacturer's electric power transmission machinery and controls is given in this 8-page, attractively illustrated bulletin. Briefly discussed are seven basic functions of this power transmission method, with individual applications to typical manufacturing operations.

Bul D-2311 is issued by Reliance Electric and Engineering Co., Dept. FP, 1088 Ivanhoe Road, Cleveland 10, Ohio. When inquiring specify FP 3892 on handy form, pages 2 and 3.

Compartmentized Box Cars

(*Continued from page* 25)

car. With load stowed, gates are moved up snug and locked. Other end is similarly loaded and gates positioned. Center area, at doors, becomes third compartment.

One man can quickly position gates and lock them. Bracing and tying of loads is not often required. As gates fold out of way against side walls of car there is no interference during loading to handling equipment. End compartments rarely extend close to car door.

Each gate is secured at four points by manually operated locks placed at the four corners. This arrangement is a direct and simple mechanism for engaging heavy square bars with keepers in the car floor, on side and at the car roof. (Note keeper strip at top of car in large photo.)

When set, the locks will not jar open. Gates may be positioned wherever desired at approximate 3" intervals. Pairs may be locked in the same axial straight line or staggered as required by the lading. While normal installation involves two pairs, more gates can be used if needed. As gates can be stored at end of car, they do not prevent its being used in the conventional manner with practically no loss of cargo space.

(Compartmentizer cars with adjustable gates are built by Pullman Standard Car Co., 79 E. Adams St., Chicago 3, Ill. . . . or for more information check FP mhan on handy 3893 on handy form, pages 2 and 3.)

"OUTSTANDING RESULTS WITH IDEAL DELIVERY COMBINATION..."

...Reports ARTHUR T. McGONIGLE, President BACHMAN BAKERIES, INC., Reading, Pennsylvania.

WHITE 3000 and Mustang Power"

MODERN and efficient delivery equipment—White 3000 powered by Mustang Power.

That's the report from Bachman Bakeries, Inc., Reading, Pa.

"Our drivers report good roadability, comfortable ride and outstanding maneuverability in city traffic and over-the-road," Arthur T. McGonigle, President, reports. "Our large, bulky loads require maximum body sizes, and we find shorter wheelbases and wide tread front-axle permit much better positioning for loading and unloading, saving considerable driver time and exertion.

"Accessibility to vital parts has reduced our maintenance cost in labor and time out of service—another White advantage," Mr. McGonigle reports.

In every way, it pays to modernize with the White 3000. See your White Representative for full information on its cost-savings advantages in your business.

PRETZELS from Bachman's go by White 3000 all across Eastern United States. These units average 75,000 miles per year... carry maximum payloads ... have ideal flexibility for wide range of terrain covered.

Tips its cab to service

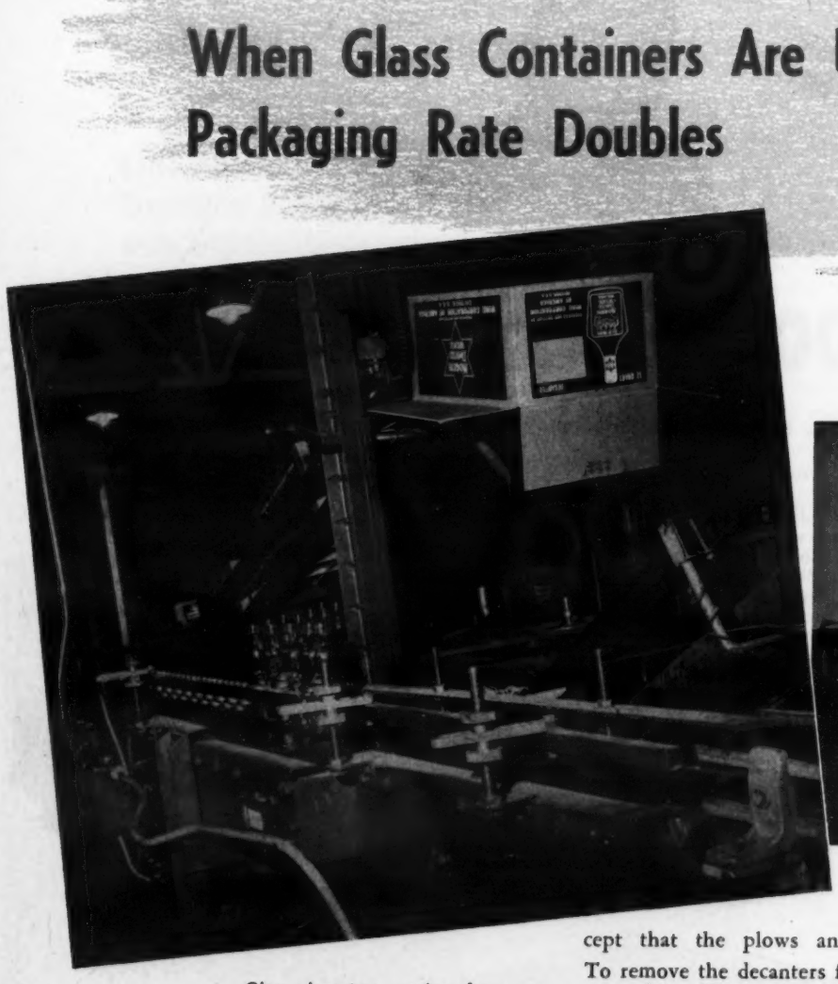
THE WHITE MOTOR COMPANY
Cleveland 1, Ohio

For more than 50 years the greatest name in trucks

When inquiring check FP 3894 on handy form, pgs. 2-3

When Glass Containers Are Unloaded Mechanically Packaging Rate Doubles

New line at Wine Corporation of America eliminates glass breakage, saves floor space with "short" sealer



Glass decanters moving from unscrambler after being automatically unloaded. Empty shipping case about to make a sommersault before being conveyed to case sealing machine

Sealed cases pass under heating element (arrow) before entering the 8' compression unit which is half the length of conventional case sealers

PROBLEM: Another packaging line was needed for the big Wine Corporation of America plant in Chicago, as production of Mogen David wine increased from 75,000 gal in 1945 to over 4,000,000 gal in 1951.

Chief Engineer Ed Rohrbach ordered new filling and handling equipment, but found production rate was limited by the speed of manually removing empty glass containers, prior to filling, from cases.

Solution: Glass containers are now removed from shipping cartons so that Mogen David wine is now being packaged in quart decanters on an automatic line from case unloader to sealer.

Glass manufacturers send empty decanters to Chicago in Mogen David shipping cases. These are inverted as they are manually transferred from pallet to conveyor leading to new unloader. Cases are timed into the unloader between flight bars. The outer flaps are opened as the inner flaps rest on a package plate. This movement is similar to that of an automatic sealer except that the plows and chains are up-side-down.

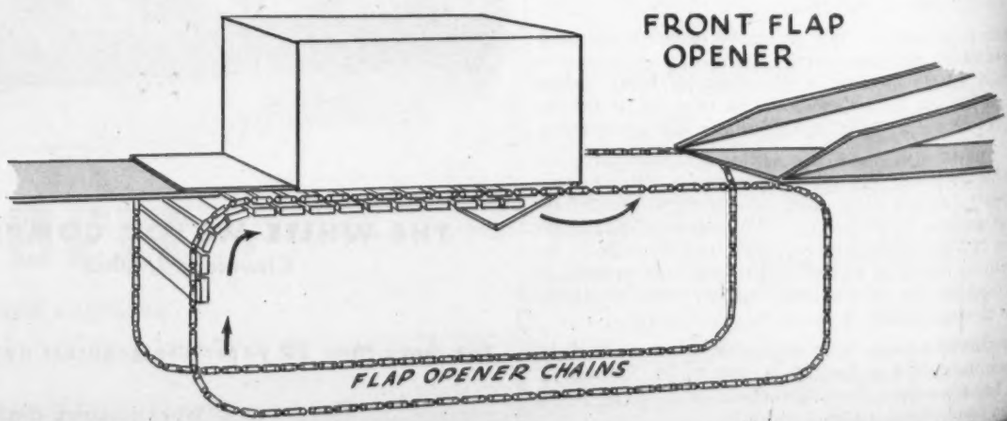
To remove the decanters from the case, the rear flap is opened by allowing it to slip in a hinged section in the package plate and pivot about this point until it is opened. The other flap is opened by the front flap opener chain, which is a series of metal slats connected to two parallel chains (see drawing). These slats shove the front flap open.

With the four flaps open, the glass containers rest on the moving metal slats to be deposited on a rubber unscrambling belt. At the same time the empty case moves up a conveyor at a 15° angle from the unscrambling section. After it travels about eight feet, the conveyor ends and the case is inverted so the open end is right-side up (see photo, drawing).

Another conveyor carries the case over the filling, capping, and labelling machines to the casing and sealing operations. The automatic case sealer has a compression unit, half the length of conventional units. This is possible because the sealer is equipped with an electric heating element.

Filled cases are timed into the sealer and automatically after gluing, the flaps are subjected to a blast of hot air which makes the glue extremely tacky. From the compression unit, the cases are palletized and ready for shipping.

Results: The Wine Corporation of America has been



able to double the speed of the line packaging Mogen David wine from 60 qt/min to 120 qt/min. Only one man is needed to move the cases from pallet to conveyor. At the former rate, as many as three men were required to unload the empty glass containers.

Chief Engineer Rohrbach now finds glass breakage to be insignificant. "The human factor has been eliminated from unloading glass on a steel unscrambler."

Packaging space was saved when the length of the case sealer was reduced from 31′ to 18′.

(Any glass or metal container can be handled by the A-B-C unloader and unscrambler or the A-B-C short automatic case sealer which were developed by the A-B-C Packaging Machine Corp., Dept. FP, 102 S. Front St., Quincy, Ill. . . . or for more information check FP 3895 on handy form, pages 2 and 3.)

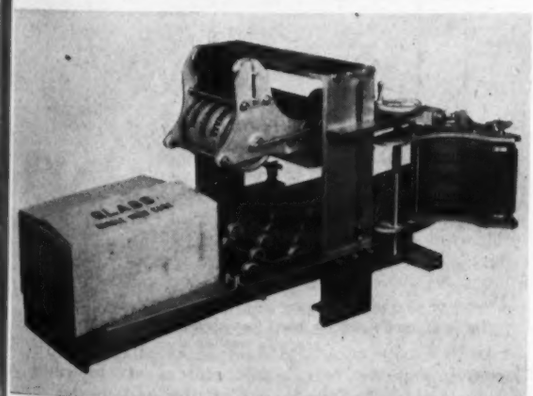
Prints tops, sides of loaded shipping cases during package sealing

Easy to interchange rubber type or mats, side rails adjustable to box size, indexing arm centers impression on each box

USES: Unit prints tops and sides of filled corrugated or fibre containers. Can also be used for addressing.

Features: Uses quickly interchangeable rubber type or mats; no make-ready is required. Type and ink rollers need not be cleaned after using. Eliminates large inventory and advance purchases of printed containers.

Description: Side rails are adjustable to take various sizes of containers. Spring-loaded pressure rollers are supplied to compensate for variations in container thickness. Uses quick-drying, non-caking ink. Built-in internal reservoir assures thousands of impressions without re-inking. Indexing arm or drum is provided for centering impression. Printing drums made to provide space for multiple marking to identify contents, date of packing; protects against pilferages, identifies packer, dates perishables.



Prints tops and sides of loaded containers

(Product of the Industrial Marking Equipment Co., Inc., Dept. FP, 454 Baltic St., Brooklyn 17, N. Y. . . . or for more information check FP 3896 on handy form, pages 2 and 3.)

Fundamental in the Arkell & Smiths philosophy is the precept that specialists should control every phase of the operation. Only by the correlation of sound thinking throughout every step in the designing, printing and construction of multiwall and specialty bags can the incomparable A&S quality be guaranteed.

To this end, A&S maintains a staff composed of packaging specialists . . . Development Engineers to tackle and solve your individual packaging problems . . . an Art Department that builds visual impact into the flat exterior of your package . . . Production Specialists with all the skills and experience acquired through 93 years of continuous specialization in the manufacture of paper bags.

Why not analyze your various packages now and consider the use of new, improved multiwall and specialty bags being designed and produced by the A&S Packaging Team. Address your inquiry to Packaging Engineer, Arkell & Smiths, Canajoharie, New York.

ARKELL and SMITHS

CANAJOHARIE, N. Y. · WELLSBURG, W. VA. · MOBILE, ALA.

ARKELL & SMITHS · A&S · THE OLDEST NAME IN PAPER BAGS ·

When inquiring check FP 3897 on handy form, pgs. 2-3

SYLVANIA CELLOPHANE

The overwrap used on this coffee ring is MS-1 in the 300 gauge.

The use of Sylvania Cellophane is one of today's most dependable methods for increasing sales—especially among self-service items. Why? Because its crystal-clear transparency enables all the mouth-watering goodness of your product to shine through—instantly! Because it is highly protective—safeguards freshness and flavor from wrapping table to kitchen table. Because it is moisture-resistant—seals moisture in where needed—shuts moisture out where necessary.

Sylvania Cellophane is easily applied on high-speed, automatic machines and is engineered to meet an ever-widening variety of packaging needs. Because it does so much so well, it is surprisingly economical to use.

If you would like to explore ways of utilizing your present supply of cellophane more effectively—either through improved package design or the use of a different type or gauge—write our Market Development Division, Dept. F-5.

SYLVANIA DIVISION AMERICAN VISCOSE CORPORATION

General Sales Office:
1617 Pennsylvania Blvd.,
Philadelphia 3, Pa.

When inquiring check FP 3898 on handy form, pgs. 2-3

Dries up to 450 cool cans/min with blasts of cool air . . .

constant flow of high velocity directional air r moves all moisture from can sides and ends

Uses: Eliminates moisture from can surfaces.

Features: Dries containers quickly in a minimum of space as soon as they emerge from cooler following processing. Handles up to 450 cans/min, ranging fro 6 oz juice to No. 2½ size, by employing star or cup feed Can be fed by simple chute feed for slow speed opera tion (300 cans/min or less).

Drying is accomplished by directed blasts of cool a released from a specially designed chamber. Cold (9 to 100°) cans are conveyed beneath air blast tube o chamber. Each can lies laterally in conveyor and rol as it progresses beneath the chamber, providing full exposure of surface area.

Description: As cans move to dryer's discharge end air is blasted onto can surface at a specified angle so that moisture is progressively forced off can in one direction. This wiping action is accomplished by po sitioning air chamber diagonally over can chain conveyor so that the first blast of cool air hits can's right edge

Inclined model of air blast can dryer. Horizontal models are also available

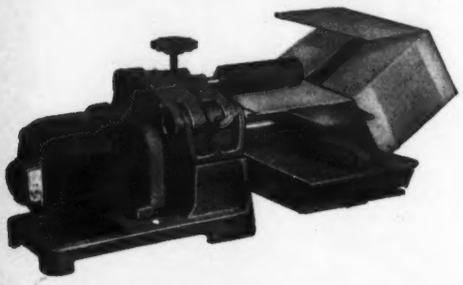
Removing water from can's end is accomplished in similar fashion by employing smaller and shorter cham bers, located on each side of conveyor. Cans are ready for immediate labelling and casing, or may be collected and stacked bright for future handling.

Inclined models are available which act as can elevators as well as dryers. Such units can be installed at angles up to 45°, depending upon plant layout.

Machines built in two sizes — small size has 6½ ft air chamber with 5 hp blower, large size has 13 ft chamber with 10 hp blower. Power for chain can conveyor is supplied by ½ hp geared motor drive. Design of cham bers permits smooth, uninterrupted issuance of air —

60 years of dependable service

POTDEVIN
CARTON GLUERS



Motor-driven machines for gluing carton flaps securely in quick time. Uniformly glued flaps insure safely sealed cartons. No glue-ooze at the edges. Glues one or both sides of large inner flaps or the underside of the printed seal flaps. Uses any carton sealing glue.

Send for complete information.

POTDEVIN MACHINE CO.
290 North St., Teterboro, N.J.

Designers and manufacturers of equipment for Bag Making, Printing, Coating, Laminating, Gluing and Labeling.

When inquiring check FP 3899 on handy form, pgs. 2-3

NO "PARKING PROBLEMS" for case packers with *Styl-O-Matic* ROTARY ACCUMULATING TABLE

- A convenient, practical terminal work table upon which the product from the conveyor collects to wait for manual case packing and accumulation. Extremely efficient.

ACTS AS A RESERVOIR FOR EXCESS BOTTLES WHEN FEED IS OCCASIONALLY TOO FAST FOR CASE PACKER

- It's a "parking space" for excess units when feed from conveyor exceeds packer's ability to take care of same.

MAIL THIS COUPON FOR FULL DETAILS

FREE!

ISLAND EQUIPMENT CORP.
27-01 Bridge Plaza North
Long Island City 1, N. Y. Dept. FP-5

Please send particulars on the Styl-O-Matic Rotary Accumulating Table.

NAME_____

ADDRESS_____

CITY_____ STATE_____

When inquiring check FP 3900 on handy form, pgs. 2-3

eddy currents or vacuum pockets are formed. Moisture is borne through the air stream into a collector pan and piped to a drain.

Dryers operate efficiently on lithographed cans simply by covering can tract with rubber tubing. This covering also makes it possible to increase dryer's angle of incline to more than 45°, if necessary.

For high speed operation, two types of positive feeds are recommended. Cup feed is for No. 2½ can size and larger, rubber star for No. 2 cans and smaller.

(FMC Air Blast Can Dryer, built by Canning Machinery Div., Food Machinery & Chemical Corp., Dept. FP, P.O. Box 760, San Jose 5, Calif., is designed for either inclined or horizontal installation depending upon processing operations. For more information check FP 3901 on handy form, pages 2 and 3.)

Wrap Two Cans Together Under One Label

Wrapped under the label shown here are two cans taped together. One contains meat, vegetables, the other pie crust mix. Unitized package stacks well for display, easy pick-up by customer. Printed in red, green, and black on white background, label features picture, in natural colors, of the baked pie. Directions for making pie crust are illustrated by a six-view strip of action photos. Kri-Pi beef pie mix is packed by Krey Packing Co., St. Louis 7, Mo.

Suggests production aids to sealing glass containers

Describes in 34-page full-color booklet "Vapor-Vacuum" glass container closures, sealing machines and production aids for food packers. The basic process is presented with diagramatic photos. There is a list of products and uses for the four standard closures: regular cap, wide slip-on cap, narrow slip-on cap, and shallow cap. The shallow cap is also available with a depressed panel for easier and safer stacking.

Production aids presented include: glass jar transfer, push-off into cooler, briner, unscrambler, take-off, headspacer, coder, and washer. "Vapor-Vacuum Seals and Sealing — 1952" is issued by White Cap Co., Dept. FP, 1819 N. Major Ave., Chicago 39, Ill. When inquiring specify FP 3902 on handy form, pages 2 and 3.

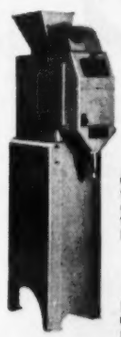
Now...Triangle's 'pay-as-you-package' plan BRINGS YOU new benefits

If you're wondering, "When should I buy new packaging machinery?" . . . read this . . .

Now you can obtain all the advantages of Triangle weighing, filling and sealing machinery . . . with the added help of Triangle's 'Pay-as-you-Package' Plan.

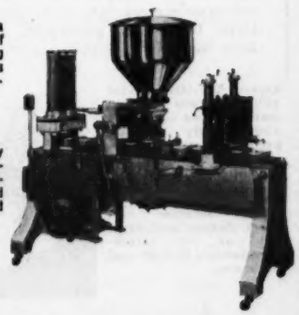
In many cases, just a part of the savings earned with new Triangle equipment covers its cost. Manpower and time savings quickly show substantial new profits for you.

There's a Triangle or Triangle-Bagby machine to meet your exact requirements . . . to fill all dry and semi-liquid food, bakery and dairy products. Investigate . . . without delay.



Triangle offers a complete line of weighing and filling equipment — such as the Triangle Elec-Tri-Pak.

The Triangle-Bagby line includes specialized filling equipment for dairy and other semi-liquid food products.



TRIANGLE Package Machinery Co.

6638 W. Diversey Avenue, Chicago 35

Sales offices in New York • Newark • Boston • Baltimore • Dallas • Denver • Los Angeles • Portland • Montreal • Mexico City

Send complete facts about your 'Pay-as-you-Package' Plan.

We fill ..... (product).

Name .....

Company .....

Address .....

City ..... Zone .. State .....

When inquiring check FP 3903 on handy form, pgs. 2-3

WHISKIES THE U. S. DRANK IN 1951; BRAND BY BRAND*

Rank	Brand	Cases Sold (est.) 1951	Rank	Brand	Cases Sold (est.) 1951
1	Seagrams 7 Crown	9,600,000	14	Early Times	1,000,000
2	Calvert Reserve	3,600,000	15	Fleischmann's Ptd.	950,000
3	Schenley Reserve	3,300,000	16	Canadian Club	910,000
4	Corby's Reserve	2,700,000	17	Park & Tilford Reserve	800,000
5	Imperial	2,650,000	18	Hunter	770,000
6	PM DeLuxe	1,600,000	19	Old Thompson	700,000
7	Four Roses	1,500,000	20	Good Old Guckenheimer	684,000
8	Carstairs White Seal	1,400,000	21	Echo Springs	680,000
9	Paul Jones	1,350,000	22	Old Charter	620,000
10	Old Sunny Brook	1,270,000	23	Old Sunny Brook	610,000
11	Cream of Kentucky	1,250,000	24	Hill & Hill (BLEND)	600,000
12	Old Stagg	1,200,000	25	Hill & Hill (STRAIGHT)	575,000
13	Seagrams V.O.	1,150,000			

* Reprinted through courtesy of BUSINESS WEEK

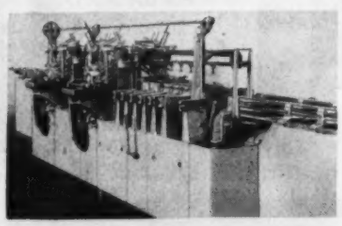
YOU'RE IN GOOD COMPANY WHEN YOU USE

WORLD BEE-LINE LABELERS

24 out of 25

of these leading Brands are labeled on WORLD BEE-LINE LABELERS! Bottles labeled on the BEE-LINE have clean, neat, precisely positioned front and back body labels, neck labels, shoulder labels and/or medallions . . . 24 excellent reasons why you too should consider the BEE-LINE for better packaging, smoother production, and lower operating costs.

Right: BEE-LINE Model 135 with twin labeling stations turns out up to 120 neatly labeled bottles per minute. BEE-LINE gives you a choice of 4 Models to fit your production needs and meet your range of glass container and label shapes and sizes. Ask us for recommendations, layouts and estimates.

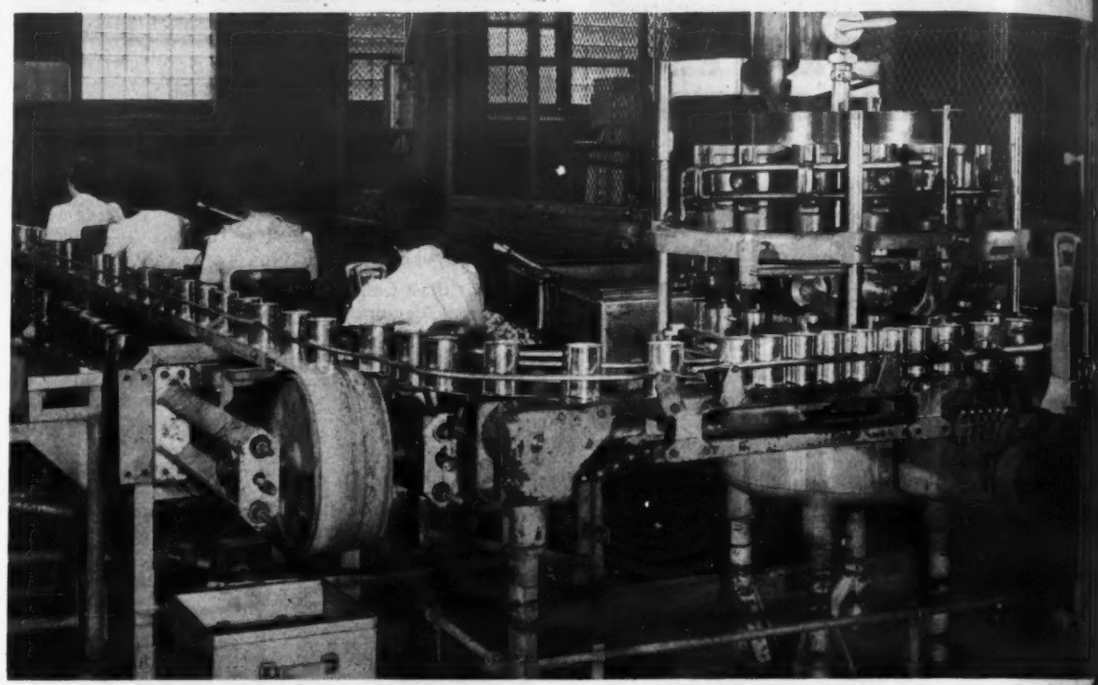


YOU GET THE BEST LABELERS IN THE WORLD

"Repeat Orders are surest evidence of Satisfaction"

ECONOMIC MACHINERY CO.
WORCESTER 3, MASSACHUSETTS
DIVISION OF GEO. J. MEYER MANUFACTURING CO.
MILWAUKEE, WISCONSIN
New York • Philadelphia • Pittsburgh • Chicago • San Francisco • Los Angeles • Denver • Louisville • Salt Lake City • El Paso • Seattle • Portland • Phoenix • London • Montreal • Toronto • Winnipeg • Newfoundland • Vancouver • Mexico City • Sydney, Australia • Wellington, N. Z. • San Juan, P. R. • Ciudad Trujillo, D. R. • Honolulu, T. H.

When inquiring check FP 3904 on handy form, pgs. 2-3



14 station piston filler dispenses gravy into No 2 cans filled with meat, vegetables

How to Pack Beef Stew at High Speed Without Spilling the Gravy

Rotary piston fillers for gravy on packing line at Armour's St. Paul plant have capacity to 600 cans/min

PROBLEM: Gravy is traditionally hard to handle. Putting it into cans, already filled with beef stew, is no exception. When Armour & Co. installed new equipment in the St. Paul plant for rapid canning of this product, one of the chief objectives was to avoid spilling the gravy.

Actual stew ingredients are prepared in large kettles which are transported on small trucks to stations at the can filling line. Meat, vegetables are put into cans by a crew of girls. Cans must then be filled with exactly 6 oz of gravy. Experience had shown that the usual methods were comparatively slow and resulted in spillage when an effort was made to speed them up.

Solution: Speed and precision without spilling are easily obtained in rotary piston fillers. Cans are conveyed to filler and rotate on table underneath pistons. They are filled during period of rotation and are then discharged.

Filling to absolute maximum without spillage is easily achieved as adjustments are accurate to within 1/10 to 1/4 oz. Adjustment is made by turning screw varying height of cam track, without stopping machine. "No Can-No-Fill" feature prevents waste and spillage.

Machine is equipped with adjustable gravity feed, can chute and feed screw. It is also supplied with a flat top chain conveyor. Containers are timed by a feed star from the screw feed into the container chucks of the filler. Filler is set for one size container. For each additional can diameter, an additional set of change parts is required. When can height is changed additional height change parts are needed.

In cleaning filling heads, only two parts need be removed, the ring free piston and the two-port tapered plug. No tools are required.

Results: Rotary piston filler now dispenses exactly 6 oz of gravy to each can of stew as it comes from hand pack stations on table top conveyor chain. Spillage and waste are eliminated and the operation is carried on at high speed practically without interruption. Substantial savings are reflected in high level of production and clean-up time. Product uniformity is assured.

(Rotary piston fillers are built by The Pfaudler Company, Dept. FP, Rochester 3, N. Y. . . . or for more information check FP 3905 on handy form, pages 2 and 3.)

One operator makes film bags, fills them quickly with powders or liquids

Dual assembly fills and weighs accurately at 30 packages per minute

USES: As a simple, economical methods of packaging powders and liquids in unsupported film bags. Dried milk is typical of materials for which this combination of bag making and filling machine is especially suited.

Features: Bags are made from roll stock and held open for filling by vacuum. Bag width can be changed while machine is running without loss of time. Bag height is changed in one minute by inserting new roll of stock. Filling accuracy to tolerance of less than 1% by volume. No special wiring required.

Description: Designed primarily for use on polyethylene, but handles other thermoplastic films. Capacity is up to 30 packages per minute. Bag size can range

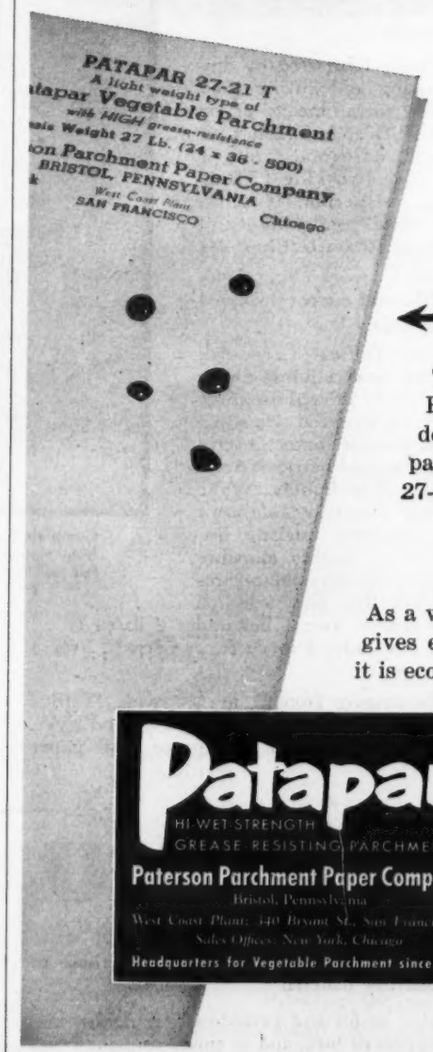
Bag maker-filler assembly fits space 2½ x 3 ft

from 1 x 1" to 5 x 8" with standard bag-making machine. By use of "change over kit," size can be increased to maximum of 6 x 12½". Filler is automatically actuated at the end of the bag making cycle. Just prior to the release of the "fill," a cam driven movable nozzle enters the open bag and "fill" is released.

Fill is from less than 1 to 32 oz for powders, and from 1 cc to 1 gal for liquids.

(Oto-Pak packaging machine and Mateer electric automatic filler assembly is available from P-N-R Corp., Dept. FP, 4500 Euclid Ave., Cleveland 3, Ohio . . . or for more information check FP 3906 on handy form, pages 2 and 3.)

NEW! PATAPAR 27-21T
light in weight . . .
. . . high in grease-resistance



Patapar 27-21T is a new type of Patapar Vegetable Parchment that is light in weight (27-lb) and – in addition to wet-strength – *extremely grease-resistant.* In actual commercial use, Patapar 27-21T has shown greater resistance to grease and oil penetration than conventional grease-resisting papers of much heavier weight. It offers improved packaging at lower cost.

← NO GREASE "crawl"

This test will prove it. Place 5 drops of oil on a sheet of Patapar 27-21T. The drops will not increase in size. They do not spread or "crawl." On a conventional grease-resisting paper the oil drops will crawl and spread noticeably. Patapar 27-21T stops grease "crawl" *completely.*

Many important uses

As a wrapper for lard, shortening or margarine Patapar 27-21T gives excellent protection. It stays clean – looks appetizing. And it is economical. Because it resists grease staining, Patapar 27-21T is used also as a package insert for coffee, nuts and other oil bearing products. It is ideal as a protective wrapper for oiled metal parts and leather goods. These are just a few of its many applications.

Send for samples

For samples of Patapar 27-21T and more information, write us today. Tell us the use you may have in mind.

When inquiring check FP 3907 on handy form, pgs. 2-3

TOO MANY
HANDS
in your
PACKAGE HANDLING?

The more fingers involved in *slitting — wrapping — bagging — sealing* and other packaging operations, the more profits drip through them. Machines that replace hands in the packaging line (or help boost output per hand) mean money in the bank . . and plant-proven machines in the broad CORLEY-MILLER line can make the cost man in just about any type of packaging department sit up and take notice!

For example, if your product is wrapped in film, foil or paper, here's a flexible, practical machine that's turning out more and better production at lower costs for packagers in every segment of industry . .

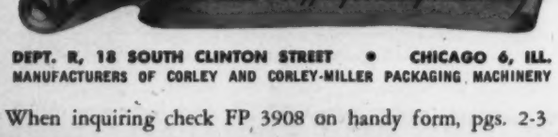
CORLEY-MILLER

WRAPS • PRELABELS • IMPRINTS

Whatever your packaging field, we can show you how to take dollar-wasting hands out of your package handling with efficient, cost-cutting machines for WRAPPING . . SEALING . . SHEETING and SLITTING . . BAG MAKING, FILLING, CONVEYING . . SEALING. And for BARRIER PACKAGING, either government or civilian, we have some tricks up our sleeve which make it easy — even with sticky Grade C materials.

Send for illustrated folders and data sheets — just tell us what and how you're packaging

. . WRITE TODAY!



DEPT. R, 18 SOUTH CLINTON STREET • CHICAGO 6, ILL.
MANUFACTURERS OF CORLEY AND CORLEY-MILLER PACKAGING MACHINERY

When inquiring check FP 3908 on handy form, pgs. 2-3

Cushioning Material Easily Fabricated Into Protective Package

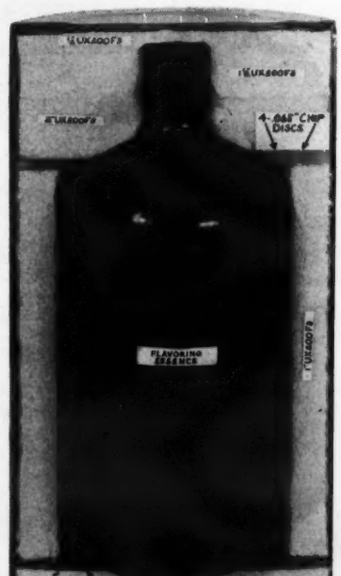
Die-cut or sawed shapes can be secured for speedy packaging of standard products

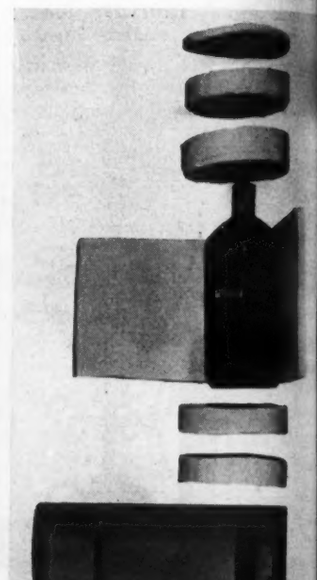
USES: Protective cushioning material for packing and shipping a wide variety of products — bottled products, delicate mechanisms, and the like. Furnished to comply with *all* types and densities included in Federal Specification UU-C-843 for cellulosic cushioning materials.

Features: Easily fabricated by die-cutting, band sawing, and slitting, then attaching by mechanical means or by adhesives. Flexibility and resiliency, as well as toughness and firmness, suit it for irregularly shaped packing. Flame retardant, mold and vermin resistant, low heat and sound conduction, and vibration damping characteristics are very useful.

Special roll widths and die-cut or sawed shapes can be supplied.

Description: Tufflex Cargo-Pak (made from clean, new cellulose fibers, felted into a mat) is offered in three types of cushioning material, classified essentially by degree of water absorbency. Type I is designed particularly to be highly absorbent to liquids. Type II is water resistant (partially absorbent) and is a general-purpose packing material. Type III is a highly moisture resistant material. In turn, these three types are each available in a selection of densities: Class A, over 1 but under 2 lb/cu ft. . . Class B, over 2 but under 3 lb/cu ft. . . Class C, over 3 but under 5 lb/cu ft.





Completed protective packaging for bottled product at left is made from elements shown at right. If proper cushioning material is selected, felt will absorb liquids in event package receives hard enough blow to break container

Offered in rolls ranging from 3 to 50" wide, Tufflex comes in six different thicknesses between ⅛ and 1½". Surfacing with waterproof and vaporproof kraft paper can be furnished either on one or both sides of the sheet.

(Product of the Wood Conversion Company, Dept. FP, First National Bank Bldg., St. Paul 1, Minn. . . . or for more information check FP 3909 on handy form, pages 2 and 3.)

Mobility of pneumatic conveyor useful when filling hoppers of scattered machines . . .

contact parts can be made of stainless steel, hose of tasteless, odorless material

Uses: Designed to fill and periodically replenish machine supply hoppers or bins, and to empty containers and shipping drums without dumping same, thereby avoiding dusting and spillage.

Typical example in the food industry is where granules and powders have to be transferred from mixers, blenders and other equipment to the hoppers of filling and weighing machines.

Features: Mobility of equipment makes it handy to use where a number of machines in different locations must be serviced. Different materials can be handled in sequence with little or no intermixing. All metal in contact with material can be stainless steel. Tasteless, odorless suction hose can be provided.

Description: Material is picked up by suction nozzle and conveyed through flexible hose to receiver located above machine hopper to be serviced. Gate valve at bottom of receiver can either be manually opened and closed or set for automatic operation. In the latter case, material feeds into machine hopper by gravity until receiver is empty. Gate closes instantly when conveying system is started.

Mobile air conveyor emptying drum

Laden air entering receiver goes through a high efficiency cyclone head atop the receiver. Air and remaining fines then pass through flexible hose to motorized Airborne separator which removes most of the fines. These fines drop into dust hopper under separator. Air leaving separator goes through another flexible hose, suction blower, and a filter bag for removing any fines that may remain.

Dust hopper under separator can be easily replaced when full. Separator, which normally rests on hopper to form air-tight joint, is slightly raised by handle and lever.

Receiver is made to suit, but is usually a 30" diam tank capable of holding six cu ft. It is designed for attachment of structural members for support from below or suspension from ceiling.

Hand truck is easily pushed by one man, has rubber tires, roller bearings and brake attachment.

Conveying rate varies with kind of material and distance it has to be raised above the floor. Illustrated unit, in which material enters receiver at a point 9' above the floor, handles free-flowing materials such as granulated sugar at rate of 150 lb/min. Rate on non-free-flowing powders such as wheat flour is about 100 lb/min.

(Product of Airborne Conveyors Corporation, Dept. FP, 79 Hudson St., New York 7, N. Y. . . . or for more information check FP 3910 on handy form, pages 2 & 3.)

What should be included on canned foods labels

Revised manual of 315 pages to assist canners in using clear, concise, standardized terms for describing accurately their product to the consumer. Prepared in loose-leaf form to make further revisions easier.

Not a legal analysis of the Food, Drug and Cosmetic Act, rather an interpretation of what the label must and could include. Printed words on the label should be exact enough to serve as legal definitions.

Manual is divided into five sections: legal requirements; additional information for consumer such as cooking and serving suggestions; table of labeling terms for specific products; label example; and net contents statements for most canned foods.

To obtain "Modern Labels for Canned Foods" remit $1.25 directly to Labeling Research, National Canners Association, Dept. FP, 1133-20th St., NW, Washington 6, D.C. All manual holders will receive additional information as new pages become available.

THE DALMATIAN, originally bred to run with coaches and carriages, may suffer from technological unemployment today but he is still popular. He is a loyal, one-family dog.

The pure breed is white with either brown or black spots, round and varying in size. He should measure 19 to 23 inches in height.

For Safety in Shipping

Buy the Box with a Pedigree

DO NOT REFRIGERATE
Borden's
GRATED
AMERICAN STYLE
UNION BAG & PAPER CORPORATION
CERTIFICATE OF BOX MAKER
THIS BOX CONFORMS TO ALL CONSTRUCTION REQUIREMENTS OF CONSOLIDATED FREIGHT CLASSIFICATION
BURSTING TEST 175 LBS. PER SQ. INCH
SIZE LIMIT 60 INCHES
GROSS WT. LT. 40 LBS.
SAVANNAH, GA.
TRADE MARK UNION

Dependable Packaging Since 1872

BORDEN'S Grated American Cheese is one of many famous national brand products shipped by truck, rail, water or air in Union corrugated containers—the boxes with a pedigree.

Reserve strength to withstand the hazards of all forms of shipping is built into Union boxes. Rigid quality control begins in Union forests and follows production through the world's largest integrated pulp-to-container plant and four strategically located box plants.

So, for safety in shipping, do as many makers of national brand products do—call on Union. 75 years of leadership in package engineering and mass production techniques is assurance you will get the right box for your product at the right price, delivered where you need it *when you need it.*

UNION Corrugated Containers

UNION BAG & Paper Corporation

Principal Offices: WOOLWORTH BLDG., NEW YORK 7, N. Y.

Corrugated Container Plants: SAVANNAH, GEORGIA • CHICAGO, ILLINOIS • TRENTON, NEW JERSEY

When inquiring check FP 3912 on handy form, pgs. 2-3

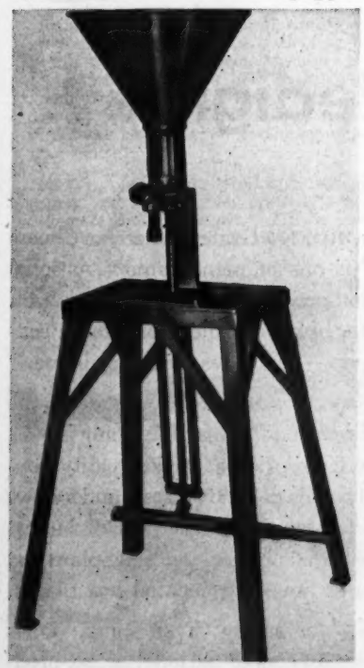
Pumps liquids, pastes into all types of containers . . .

foot-operated piston pump dispenses up to 16 oz

Uses: Filling various containers with liquids, semi-liquids, creams and pastes.

Features: Dispenses up to 16 oz per stroke regardless of whether bottles, cans, tubes, jars, or other containers are being filled.

Description: Piston filler is foot operated and acts on the vertical piston principle. Stroke is actuated by foot treadle. Filler is equipped



Foot pump fills bottles, tubes, jars, etc.

with a five-gallon hopper made of stainless steel or nickel silver.

Unit is easily moved even though it is mounted on a steel table.

(Development of The Filter Paper Company, Dept. FP, 2426 S. Michigan Ave., Chicago 16, Ill. . . . or for more information check FP 3913 on handy form, pages 2 and 3.)

No material-trapping corners in drum liner . . .

polyethylene liner has double rim and bottom for extra protection

Uses: Polyethylene lining for drums.

Features: No corners to trap and

(This advertisement originally appeared in full-color in TIME, BUSINESS WEEK and FORTUNE.)

SERVING INDUSTRY . . . SERVING AMERICA

You are always close to Continental Can with its 65 plants in the United States, Canada and Cuba, 17 field research laboratories and 63 sales offices.

PUTTING THE WORLD IN HER MARKET BASKET

Did it ever occur to you that when a housewife strolls down the aisles of a modern market she practically takes a trip around the world?

Within her reach are the choicest fruits and vegetables grown in America, meat from a dozen states, fish from the seven seas, coffee from our good neighbors to the south, tea from the Orient and delicacies from both the New and Old Worlds.

These foods travel miles to her market basket, and are available irrespective of season. For example:

Her family can eat tomatoes, peas and sweet corn when snow covers much of the farmland where these crops are grown. They can enjoy spinach, beans and asparagus when the fields are bare and brown. They can enjoy apples, peaches, pears and cherries when there's not a sign of fruit on the trees.

A big share of this canned food that puts "the world in your market basket" 365 days a year is in Continental containers bearing famous names and brands that are your guarantee of quality. In addition to cans for food, Continental makes more than 500 sizes and styles of containers for products like oil, drugs, cosmetics, household conveniences and paints.

Everybody at Continental realizes that providing a dependable source of cans and other containers is a tremendous responsibility. And we will do our utmost to meet every demand for them in these critical times.

CONTINENTAL CAN COMPANY

CONTINENTAL CAN BUILDING — 100 E. 42nd ST., NEW YORK 17, N. Y.

hold material. Double bottom and double rim provide extra protection against cuts and tears.

Description: Polyethylene drum liner is electronically sealed. It can be

removed, folded and stored for future use. The liners come in 55-gal and 30-gal sizes.

(Produced by Enley Products, Inc., Dept. FP, 254 Pearl St., New York 38, N. Y. . . . or for more information check FP 3914 on handy form, pages 2 and 3.)

Labeling hints for round-container

Ins and outs of labeling round containers are discussed in eight-page, two-color bulletin. Spot and wrap-around labeling methods are described, and several types of manufacturer's labeling adhesives are recommended. Photographs show several makes of complete labeling machines, smaller table labelers, and label pasters. Captions under the photos describe operation of the machines and tell who makes them.

Includes information on government labeling specifications.

Bul 16 is issued by Paisley Products, Inc., Dept. FP, 1770 Canalport Ave., Chicago 16, Ill. When inquiring specify FP 3915 on handy form, pages 2 and 3.

For more information on product at left, specify FP 3916 . . . see information request blank between pages 2-3.

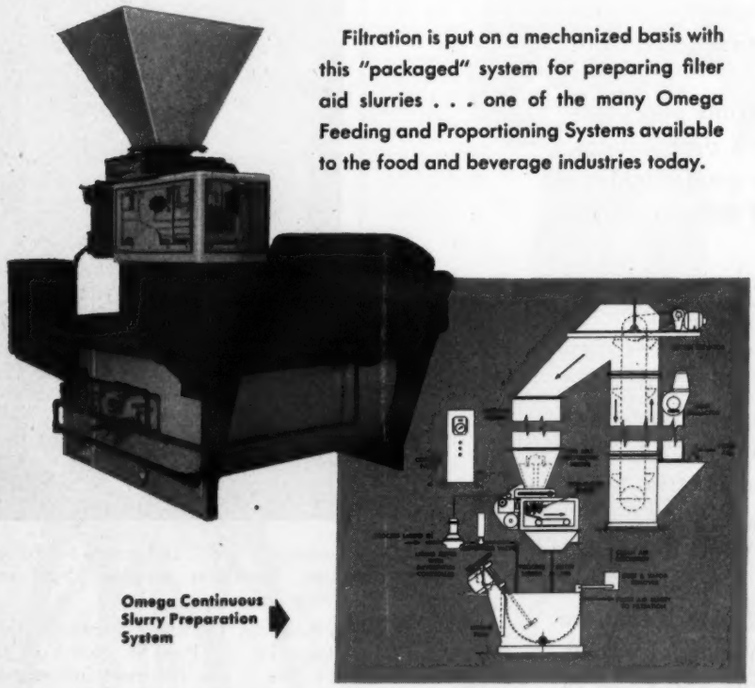
DRY FEED

LIQUID FEED

SYNCHRONIZED

Automatic System

FOR **CONTINUOUS** PREPARATION OF FILTER AID SLURRY



Filtration is put on a mechanized basis with this "packaged" system for preparing filter aid slurries . . . one of the many Omega Feeding and Proportioning Systems available to the food and beverage industries today.

Omega Continuous Slurry Preparation System

This system feeds finely pulverized filter aid (weighing 7 to 15 lbs. per cu. ft.) in step with the flow of liquid to the filters. A sensitive synchronizing unit maintains the pre-selected ratio of dry material to liquid . . . keeps slurry concentration at the optimum level . . . eliminates hit-or-miss, high-cost manual preparation. The design and construction of this "packaged" system is 100% an Omega responsibility, which relieves the customer of the purchasing and engineering of individual components.

Omega Dry and Liquid Feeders fit into the widest range of continuous processing and blending operations. Tell us about your problems and we will gladly submit recommendations and quotations. Omega Machine Company (Division of Builders Iron Foundry), 388 Harris Ave., Providence 1, Rhode Island.

BIF INDUSTRIES

OMEGA

The Last Word in Feeders

OMEGA

Volumetric and gravimetric feeders for dry materials and the feeding of liquids by gravity.

When inquiring check FP 3917 on handy form, pgs. 2-3

Pink, Blue Fluorescent Lights Over Fruit Inspection Belt Increase Sorting Efficiency

Lights can brighten defects, off-color cherries easily detected against proper background

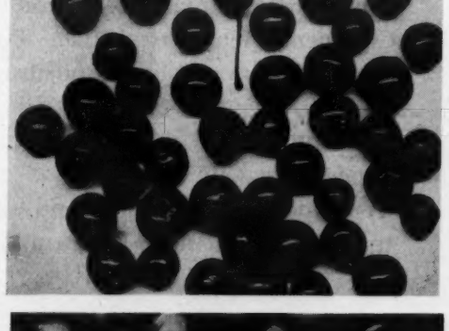
TO readily identify on high-speed inspection belts defects of cherries and almost every other fruit and many vegetables, type of light is important.

Based on preliminary laboratory work, two types of fluorescent lighting, blue and red, were selected for culling work on Montmorency and Philips cherries. These lights either brightened the defect, or brighte the body of the cherry and darkened defect, thereby increasing brightness contr

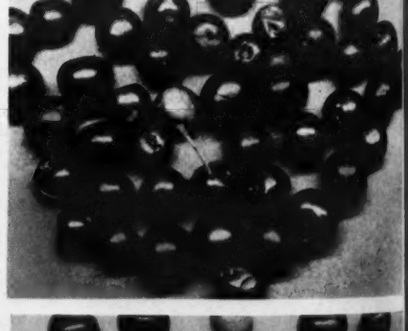
Efficiency of workers using blue fluores lights was increased 10 to 30% over sort working under white fluorescent lights short-time tests run on commercial che production lines. Night shift workers p ferred blue lights because it produced l eye strain and workers reported less fatig However, blue lights were found unsuita for daylight use.

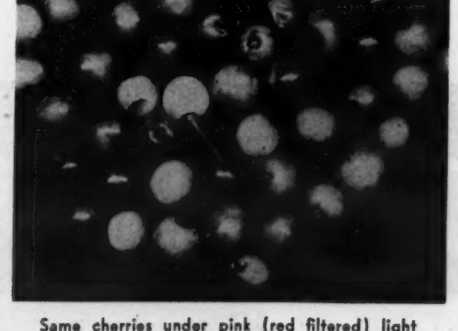
Pink fluorescent lights with a light red fil attached, can be used both day and nig

Sample of cherries under white fluorescent light with white background on inspection table. Lights can either brighten defect or brighten fruit body

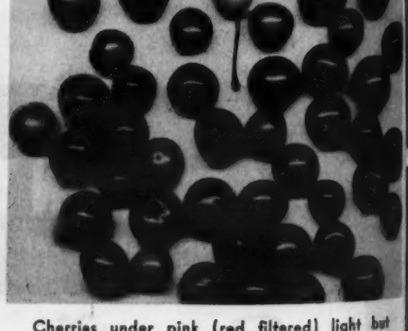


Same cherries under blue light (black background) show slightly "grayed-down" surface color. Blue lights give about half as much light as do white ones





Same cherries under pink (red filtered) light and black background increase the sorter's ability to spot culls, since defective portions are "grayed-down"



Cherries under pink (red filtered) light but with white background do not appear same as in daylight. Sorting efficiency found much higher than under white light

d were found about six times more efficient than the d alone. This combination greatly increased the con-ast between the body of the cherry and the defective ortion, much more so than did the blue lights. The ter rendered the tubes less susceptible to breakage nce the light fixtures should be lowered as close to e working surface as desired to give the proper in-nsity of light.

ackground color is important in emphasizing defects s shown in the accompanying photos. Pink fluorescent ighting is preferred, but the cherry's defects are more oticeable against a dark than a white background. n the future, this color background may be supplied n the inspection belts by the manufacturer in the color f rubber belts, or by the use of transparent belts with he proper background color placed underneath.

From data secured by G. M. Peterson and W. M. arleton, Dept. of Agricultural Engineering, Michigan tate College, in cooperation with 13 processing plants nd printed in Michigan AES *Quarterly Bulletin* Vol 34, lo. 2.)

asteurize liquid egg ith milk equipment . . .

eliminate Salmonella under commercial operating conditions by heating to 140°F, holding for 3 min

An effective method of pasteurizing liquid whole egg has been developed which employs the type of equipment ordinarily used for pasteurizing milk. Heretofore, the industry has not known the time and temperature required for heating liquid egg to insure a complete kill of Salmonella bacteria without adversely affecting the commercial usefulness of the product.

USDA research work tested the effectiveness of pasteurization at various combinations of time and temperature. Tests demonstrated that a process in which a temperature of 140° (just below the coagulation level) is held for 3 min, proved effective in eliminating Salmonella under commercial operating conditions. The functional properties of the resulting liquid egg were affected very little and the keeping qualities were improved.

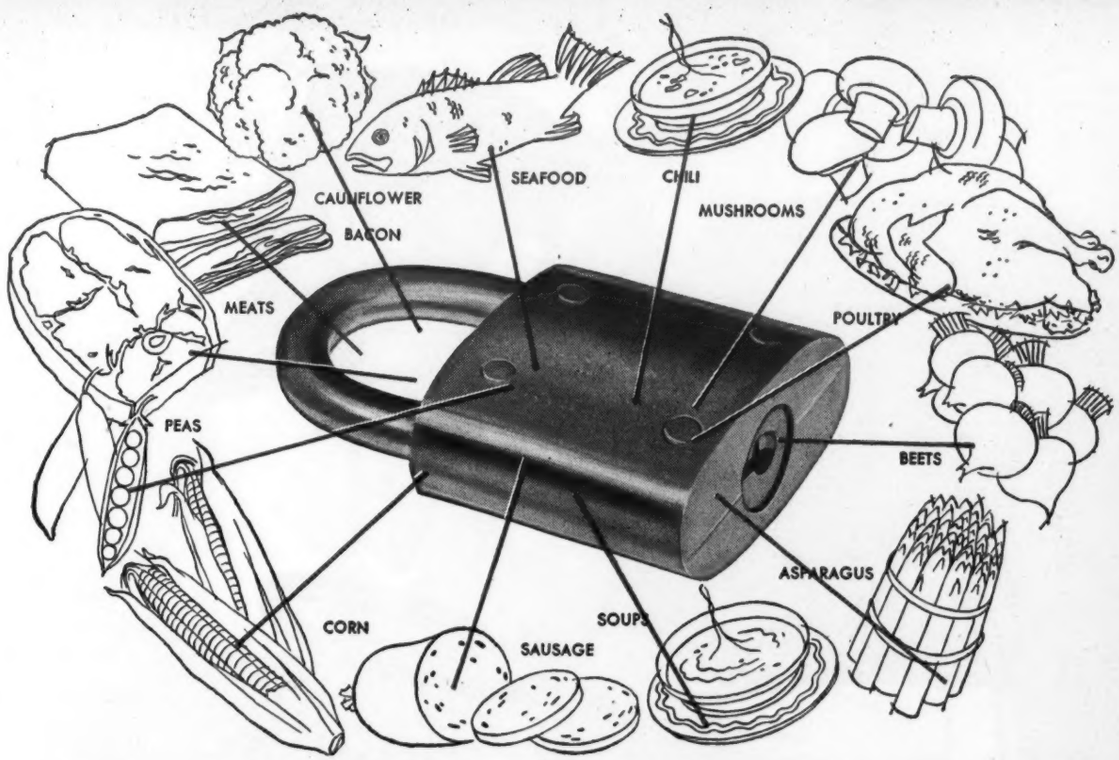
Details of the process, developed in experiments conducted by the Poultry Branch of the Production and Marketing Administration under authority of the Research and Marketing Act, are explained in a "Pasteurizing Liquid Egg Under Commercial Conditions to Eliminate Salmonella." A copy of the report may be obtained from the Office of Information Services, Production and Marketing Administration, US Department of Agriculture, Washington 25, D.C.

able converts Baumé readings o sweetpotato starch concentration

Describes method for computing Baumé-starch concentration data for aqueous suspensions of sweetpotato starch. Computations are based on a determined value for density of sweetpotato starch and on known relationship between density of water and temperature.

Master table shows computed relationships between Baumé, starch concentration, and suspension temperature for each degree Baumé between 0° and 25°Bé. Table is suitable for both starch factory and lab use. Validity of computed data is verified experimentally.

"Baumé Starch Concentration Relationships for Aqueous Suspensions of Sweetpotato Starch at Different Temperatures — AIC-296" by D. M. Batson and J. T. Hogan available from USDA Southern Regional Research Laboratory, Dept. FP, New Orleans, La.



"Lock in" Fresh Sales Appeal!

—with ZEST, the Amazing Seasoning that seals in Natural Food Flavors!

These Other Staley Products Can Make Your Foods Look, Keep and Sell Better!

Sta-Sol® Lecithin—Staley's pure lecithin concentrate speeds mixing, improves flavor, increases moisture retention in your processed foods.

Sweetose®—Staley's patented enzyme-converted corn syrup gives better color, firmer texture to fruits . . . improves the texture and appearance of vegetables. It also replaces a large percentage of the high priced sweeteners ordinarily used.

Staley's Starches—improved, thermophile-free starches especially compounded for spoilage-resistant, better-bodied processed soups, sauces and vegetables.

The most important single thing you have to sell is *flavor!* Don't leave it to chance. "Lock In" all of the fresh, natural flavor that builds repeat business—by adding ZEST to your foods. More and more processors are discovering how ZEST, Staley's pure Monosodium Glutamate *magnifies natural food flavors* without adding any aroma or flavor of its own.

ZEST requires no changes in your formulas either! Simply add a small amount of it before, during or after processing. Low cost ZEST guards against "Flavor Fading" in meats, vegetables, fish, soups, sauces, poultry . . . and scores of other foods. Once you have tried ZEST you'll never be without it!

Zest®

STALEY'S 99+% PURE MONOSODIUM GLUTAMATE

WRITE TODAY for more complete information on ZEST and its effective use as a "flavor improver" and sales stimulator for *your* products.

STALEY

Staley PRODUCTS

Research Pioneers in Products from CORN and SOY BEANS ®

A. E. STALEY MFG. CO., Decatur, Illinois

When inquiring check FP 3918 on handy form, pgs. 2-3

we're looking for

TROUBLE!

Yes, and we've found it in a *lot* of places during the past fifteen years! That's why thousands of Moynos are pumping today in virtually every industry, for no other pump can match Moynos on the tough jobs.

If the Trouble is This: Where materials are difficult to move, the Moyno knows no equal. Even non-pourable pastes and highly viscous fluids present no problem. Many products never successfully pumped have met their *master* in the Moyno.

. . . or This: When the trouble is high maintenance, the Moyno brings costs down. Unique "progressing-cavity" action resists abrasives and chemicals—develops positive pressure *without* pulsation or agitation. All wear is confined to the easily replaceable pumping element. No Moyno housing has ever worn out.

. . . or This: If disintegration is a problem, Moynos solve that, too, because action is gentle—like that of a piston moving through a cylinder of *infinite* length. There are no high-speed impellers—no whipping or churning. Moynos pass solids in suspension, such as potato salad, hamburger, jam, etc., with little or no fractioning. *This* can be very important.

. . . or if It's This: Where sanitation is a "must," Moynos make no *compromise* with fine performance. First, there's a wide choice of construction materials to precisely meet requirements. Second, there are no bearings in the pumping compartment. Third, the special food-type Moyno is quickly and *completely* dismantled for sterilizing.

Amazingly Simple. Yet, with all these advantages, the Moyno is the world's *simplest* pump. It has no pistons or valves, and only one moving part—a helical rotor which rolls around within a double-helical stator. It can be direct-connected to motor, belt-driven, or operated through a variable-speed transmission. It self-primes with nearly perfect vacuum, delivers positive pressures to 1000 p.s.i.

This Pump Does the "Impossible." If you use pumps, or ever expect to, you should know about the Moyno, and—if present pumps are giving you trouble—may we suggest prompt inquiry. We'll be glad to tell you what Moynos are doing on work that is just like yours, or we'll lab-test whatever you want to handle and guarantee pump output. Seven frame sizes. Capacities to 250 g.p.m. Ask us to send you Bulletin F3077P

R & M MOYNO PROGRESSING-CAVITY PUMP

ROBBINS & MYERS, INC.

SPRINGFIELD 99, OHIO · BRANTFORD, ONTARIO

When inquiring check FP 3919 on handy form, pgs. 2-3

NBS develops quick method of corn syrup analysis . . .

greater accuracy is now possible in determining sugar fractions

A new procedure for analyzing corn syrups that makes possible quicker and more accurate determinations of dextrose, maltose, and dextrin fractions within 1½ has been developed recently by the National Bureau of Standards.

The NBS method, discovered by Emma J. McDonald and Roger E. Perry Jr., of the Bureau's organic chemistry laboratory, utilizes selective properties of certain carbon adsorbents. After mixed syrup has been adsorbed on a suitable carbon column, the several sugars can be removed selectively by three successive washings under water pressure. After separation, individual sugars may then be determined quantitatively by well-known methods.

Apparatus required for separation method is quite simple. A glass column is filled with equal weights of carbon adsorbent (Darco 60, analytical grade) and

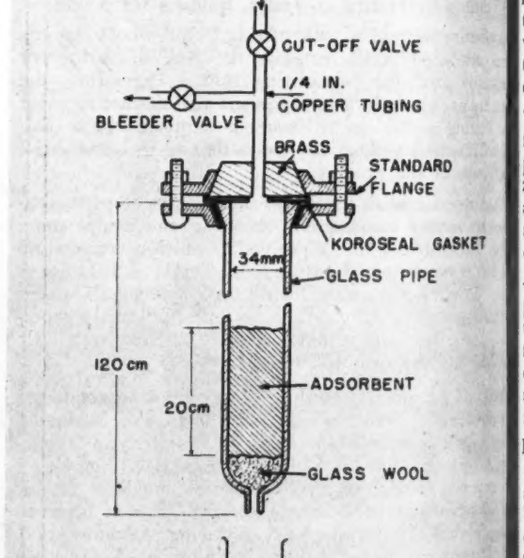


Diagram of NBS apparatus for corn syrup analysis by selective adsorption

diatomaceous earth filler (Celite). Top of tube is coupled to nitrogen tank, so that 30 to 50 lb pressure can be applied to increase flow rate of liquid through absorbent.

Sample to be analyzed is added and allowed to penetrate column. A one-liter portion of water is then passed through under pressure. Water removes dextrose, but none of the maltose or dextrins. Washing is repeated with a liter of 5 per cent ethyl alcohol; this removes the maltose, leaving the dextrins which are then removed with a liter of 15 per cent ethyl alchohol. On completion of run, column is cleaned with 95 per cent alcohol, then washed with water; this removes all traces of carbohydrates and leaves apparatus ready for next run.

(Summary of information from NBS, Technical Reports Section, Washington 25, D.C.)

Contamination of food from atomic attack is relatively slight . . .

immediate availability of food vital says report

Perfection of plans for mass feeding in event of atomic emergency was included in matters discussed at a recent defense conference held in London. Delegates from the United States, Great Britain, and Canada attended. High on the list of recommendations for foods to be used in emergency is a hot, sweet drink, made available to great numbers of people as quickly as possible following an atomic burst.

This is a "must" if shock is to be relieved, panic allayed and morale and public order restored. Secondly, a good hot meal; not just a "snack", should be provided within a few hours. British experience shows that this meal often marks the point at which an individual can pull himself together and set about the business of solving his own problems.

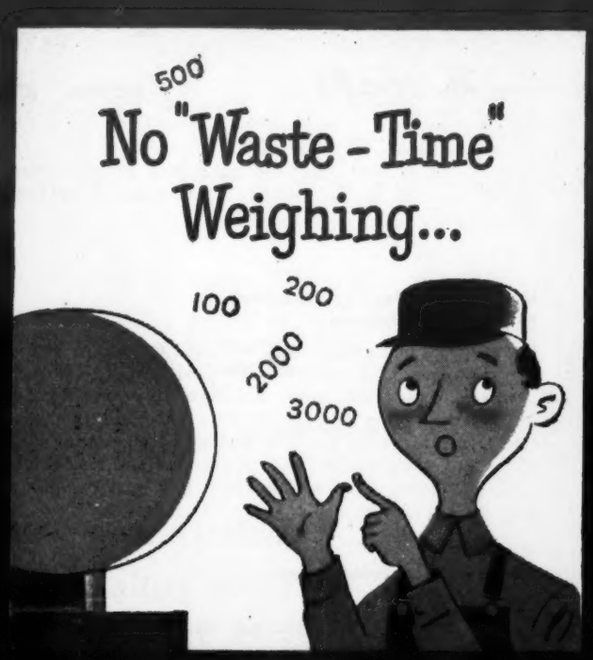
"No present day civil defense plans for emergency feeding can be complete which do not include full utilization of caterers, restauranters and all others who sell meals," states the report of the conference.

Two simple foods — bread and milk — will present the most urgent supply problem following atomic attack, the report states. Both are basic foods for adults and children, neither can be easily stored. Experience has shown that demand for bread doubles following atomic attack.

Food conferees stated that "Contamination of food from a high air burst of an atomic bomb is relatively slight." Undestroyed food present in unbroken containers may be consumed with safety if the container is cleaned externally. This same principle can be applied to foods in bulk storage, if superficial layers are removed. Federal Civil Defense Administration, Washington 25, D.C.)

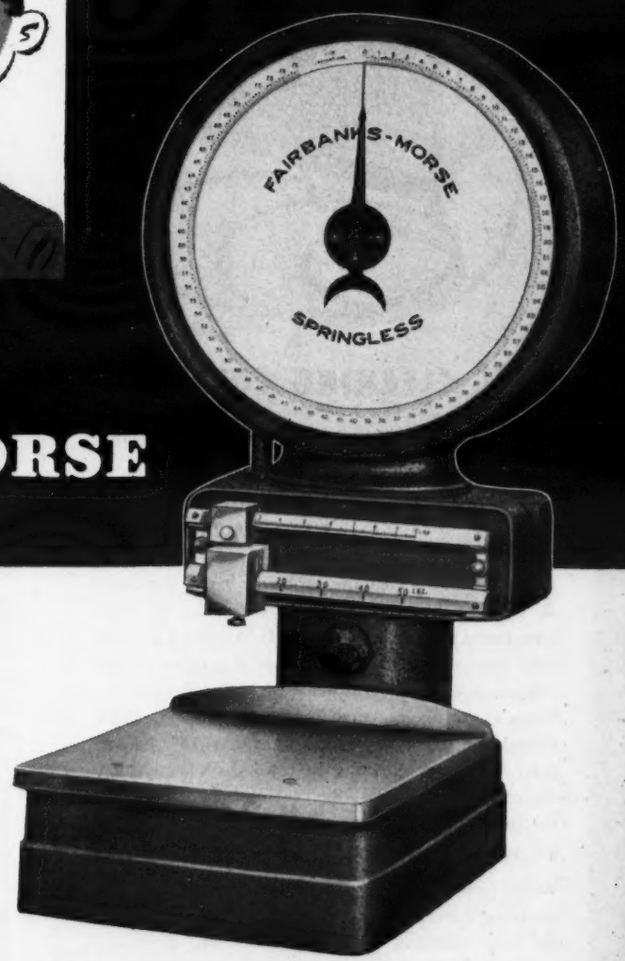
Twelfth annual meeting, Institute of Food Technologists will convene June 8-12 at Grand Rapids (Mich.) Auditorium. Approximately 65 suppliers will have exhibits; 120 technical papers will be presented.

For more information on product at right, specify FP 3920 . . . see information request blank between pages 2 and 3.



WITH

FAIRBANKS-MORSE



You speed your weighing operations with Fairbanks-Morse Bench Dial Scales. And that means there are no "bottlenecks" to hold up production all through your plant. Here's why:

With Fairbanks-Morse Bench Dial Scales, weights are read right at the point of the indicator. No time-wasting mental calculations are needed. You can weigh as fast as material can be moved on and off the scale platform. And, easy-to-read charts plus elimination of mental calculations reduce the possibility of human error . . . stop profit-eating weighing losses.

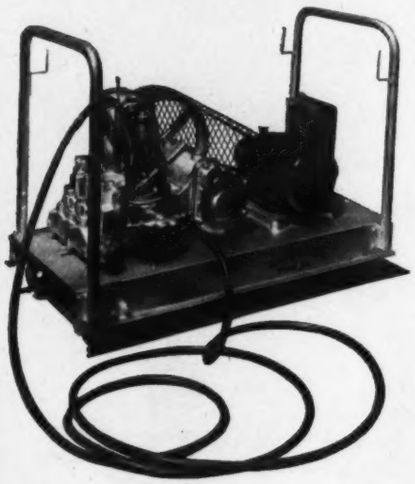
To eliminate "waste time" weighing in your operations, consult your Fairbanks-Morse weighing expert. Or, if you prefer, write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

FAIRBANKS-MORSE,

a name worth remembering

SCALES • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • PUMPS
HOME WATER SERVICE EQUIPMENT • RAIL CARS • FARM MACHINERY • MAGNETOS

FARQUHAR Portable HI-PRESSURE CLEANER



CUTS CLEANING COSTS for

- *Industrial Plants*
- *Food Processors*
- *Packing Plants*
- *Dairies*
- *Hospitals, Institutions*
- *Chemical Plants*
- *Public Buildings*
- *Paper Mills*

IF you have a cleaning problem, here's the most efficient and economical way to solve it! This completely *portable* Farquhar Hi-Pressure Cleaning Unit sweeps away accumulations of process refuse, residue, debris, or any other kind of dirt from walls, floors, vats, belts, machinery, etc., *with high velocity jet of hot or cold water at 300 to 500 p.s.i.* Ideal for cleaning in cracks, corners, other out-of-the-way places. Saves time! Saves money! Available in 10 gal. per min. size for 1 gun or 20 gal. per min. for 2 guns operating simultaneously.

Write *now* for complete information on how this amazing Farquhar Hi-Pressure Cleaning Unit can do your cleaning job *faster, better, cheaper!* Address: A. B. FARQUHAR CO., Special Machinery Department, 1203 Duke St., York, Pennsylvania.

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JUICE PRESSES • SPRAY COOLERS • PASTEURIZER COOLERS
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A. B. FARQUHAR CO., Division of THE OLIVER CORPORATION

When inquiring check FP 3921 on handy form, pgs. 2-3

Briefs . . . from contemporary publications

Here's a quick look at interesting articles appearing in other publications, . . . as selected by Technical Editor, Harry McCormack

Use of modifiers in chocolate to retard fat bloom

Investigators first established a standard method of tempering chocolate, as a reference standard. Many additional agents were used both singly and in combination. Changes in properties, other than bloom, were noted and commented on. Samples stored for 144 hours at temperatures from 15 to 34°C were studied as to appearance and results tabulated. 5 pages, 4 tables, 4 figures. (*"Food Technology," January* 1952, *page* 21)

Effect of ultra-violet rays on flour

Authors investigated the changes induced in flour by ultra-violet irradiation. The irradiated flours were then examined as to baking qualities and any changes noted. 3 pages, 5 figures, 1 photo. (*"Food Manufacture," London, March* 1952, *page* 112)

Animal protein factor produced by direct bacterial fermentation

Author's objective: Demonstrate that vitamin B 12 can be formed under anaerobic conditions. Such a fermentation is described. Large scale plant process was operated, product obtained was concentrated, then spray dried and used as a component in several mixed animal feeds. Growth comparisons made between this and other animal feed supplements. Results are tabulated. 3½ pages, 8 tables, 1 figure. (*"Industrial and Engineering Chemistry," January,* 1952, *page* 132)

Pressure tank fermentation of wine

Author presents observations on this kind of process as taken from operations in European wineries. States some advantages offered and outlines questions to be answered before practice is widely adopted. 2½ pages, 2 photos, 1 table. (*"Wines and Vines," February* 1952, *page* 25)

Lindane pesticide

Author tells about the development and naming of this material. Surveys the rise in purity until present commercial product is 99.5 to 100% pure gamma isomer of benzene hexachloride. Versatility and low toxicity of material commented on. Non-toxic to man. Ease of formulation and uses discussed. 3 pages. (*"Agricultural Chemicals," January* 1952, *page* 30)

Polarographic determination of tartrates in wine

Authors comment on importance of being able to determine small amounts of tartaric acid with accuracy. Such a method is described and its applications illustrated. 3½ pages, 7 figures. (*"Analytical Chemistry," December* 1951, *page* 1767)

Packaging special meats

Method for packaging certain meat products of John Morrell & Co. is described. Some necessary changes in processing to make this packaging applicable are also told. 1 page, 8 photos. (*"The National Provisioner," March* 1, 1952, *page* 10)

Packaging materials' influence on meat's keeping quality

Authors studied the effects of various packaging materials on color, weight loss, and surface bacterial growth of fresh and cured meats. Atmosphere with appreciable percent carbon dioxide used in some experiments. Six packaging materials were observed. Criteria of deterioration are stated and discussed. Results are shown graphically. 5 pages, 5 figures. (*"Food Technology," January* 1952, *page* 8)

Anti-oxidants for frozen cream

Samples of both winter and summer cream were treated with anti-oxidants, in varied quantities, packaged in half pint containers and stored for periods up to 12 months. Flavor noted each month during storage period. Testing procedure stated details of treatments and results tabulated. 5 pages, 3 tables. (*"Journal of Dairy Science," February* 1952, *page* 93)

Relative stability of two thiamine compounds

Three separate storage tests were conducted on various samples of flour enriched with thiamine mononitrate and thiamine chloride hydrochloride. Moisture content of flours, time and temperature of storage periods specified. Rate of loss of thiamine shown graphically. 4½ pages, 3 figures. (*"Cereal Chemistry," January,* 1952, *page* 82)

Canning little tuna

Objective was to devise a canning procedure for this fish which would yield a product with acceptable color and palatability. All components of the canning routine such as precooking time, temperature, acid dips and blanches, chemical bleaches, packing mediums, storage times and temperatures, type of fill, processing and cooling were investigated. Process recommended meets requirements as characteristics of product. (*"Food Technology," March* 1952, *page* 113)

Trends in the use of frozen foods

Article presents the results of a comparative survey conducted in 35 cities and towns. City size, area of country and survey sample percentage stated. Data includes: frozen food buyers, frequency of serving frozen foods. These figures for different size families, different income groups and different areas. Data shows preferences in

frozen foods, also specific varieties which are not liked. Reasons for dissatisfaction are told by 2140 separate buyers. Figures are for 1949 and 1951 so increases or decreases can be noted. 9 pages, 20 tables. (*"Quick Frozen Foods," March* 1952, *page* 105)

Grading tomatoes for color

Author comments on difficulties connected with the visual color grading of fruits and vegetables. Describes an instrument and a technique giving more positive results. Calls attention to necessity for trained observers and certain operating precautions. 4 pages, 1 table, 1 photo. (*"The Canner," March* 1, 1952, *page* 14)

Determining organic acids in wine by chromatographic methods

Authors comment on the desirability of being able to separate and identify organic acids present in a wine. Some specific reasons are given. Describes a method which using ion exchange resins to remove interfering components; gives results which are reliable. Table compares results of several methods. 2 pages, 1 figure. (*"Wines and Vines," March* 1952, *page* 19)

Baker's spices and flavors

Author discusses various spices and flavors which are available, and enumerates various forms in which they may be used. Comments on advantages of the dry, soluble seasonings and use of anti-oxidants. 2 pages. (*"The Bakers Digest," December* 1951, *page* 26)

Radiography applied to grain and seeds

Authors describe the method used to detect internal insect infestation of grain and seeds. Low energy radiation used. Equipment and procedure described and discussed. Comparison photos show efficiency of method. 2 pages. 5 photos. (*"Food Technology," February* 1952, *page* 44)

Maturing and bleaching agents in producing flour

Author enumerates and comments on the effects of various agents used for these purposes. States his conceptions of bleaching and of maturing. Gives several examples demonstrating effects of maturing flours used for certain specific purposes. 60 pages, 2 tables, 10 figures. (*"Industrial and Engineering Chemistry," January,* 1952, *page* 98)

Separation of organic acids from plant tissues

Authors describe a chromatographic method which they used to separate and identify 16 biologically important organic acids. Necessary apparatus, reagents and procedures described. Separations achieved are shown graphically. 3½ pages, 6 figures, 1 table. (*"Analytical Chemistry," January* 1952, *page* 187)

Soil reaction to insecticides

Paper discusses insect control through application of certain insecticides to soil. Desirable and undesirable characteristics of material extensively used are commented on. Specific examples are cited as to amounts applied, insect control secured and immediate residual effects on plant growth. 4 pages, 1 table. (*"Agricultural Chemicals," March,* 1952, *page* 45)

No Leakage Here!

Equiseal
stuffing box stops all leakage on suction heads up to 15 feet

PROCESS PUMPS

IF YOU MUST STOP LEAKAGE because of sanitation or corrosion . . . or if abrasives in the stuffing box make it hard to keep a packing in your process pump . . . you need an Allis-Chalmers Type PD Process Pump with *Equiseal* stuffing box. Within its range, the *Equiseal* stuffing box keeps the pumped liquid entirely out of the packing. The liquid cannot leak out while the pump is running, even if the packing is removed. Abrasives cannot enter the stuffing box to ruin the packing.

HOW IT WORKS

The *Equiseal* stuffing box arrangement consists of an auxiliary impeller which produces a low pressure area in front of the stuffing box. At 1750 rpm, pressure on the pump side of the stuffing box is zero for suction heads up to fifteen feet and is reduced fifteen feet where the suction head is higher.

If you have leakage or excessive packing wear problems, you should know more about the Allis-Chalmers Type PD Process Pump equipped with the *Equiseal* stuffing box. To get complete information, call your Allis-Chalmers District Office or write Allis-Chalmers, Milwaukee 1, Wis., for Bulletin 08B6615.

A-3707

Equiseal is an Allis-Chalmers trademark.

ALLIS-CHALMERS

When inquiring check FP 3922 on handy form, pgs. 2-3

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with CHERRY-BURRELL

sanitary equipment

You can forget about contamination . . . picking up undesirable flavors . . . when your product lines are absolutely sanitary. Which they will be when you equip with Cherry-Burrell. Use Cherry-Burrell pumps, tubing, valves and fittings — as so many do — to keep that fine edge to your food flavors . . . and an edge on your competition.

Famous Flexflo Pumps

Foamless centrifugal pumps offer greater sanitation, higher efficiency, easier cleaning, less maintenance. All stainless product contact surfaces. No sharp corners or dirt-trapping pockets. Easy to dismantle. All parts sturdy enough for wash sink scrubbing. Six sizes to 18,500 g.p.h. (water).

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Meet and surpass 3A Sanitary Standards. Highly corrosion resistant. Precision made for maximum interchangeability. Durable construction . . . finest stainless steels . . . assure long life, easy fabrication, simplified cleaning. Prompt delivery.

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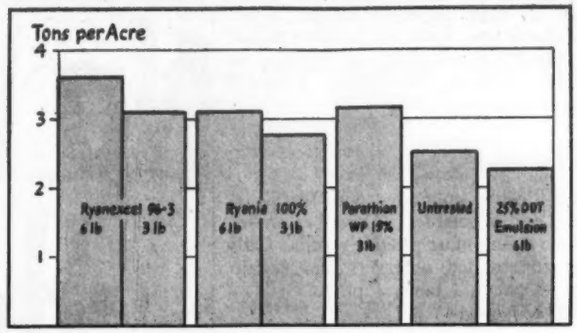


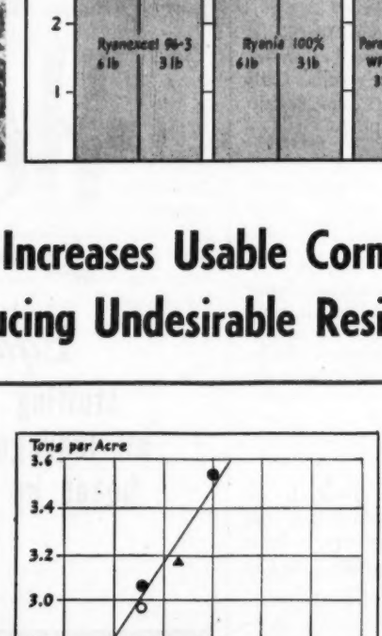
Comparing insecticide sprays and total harvest yields of usable sweet corn from 1951 test field near Fairmont, Minnesota

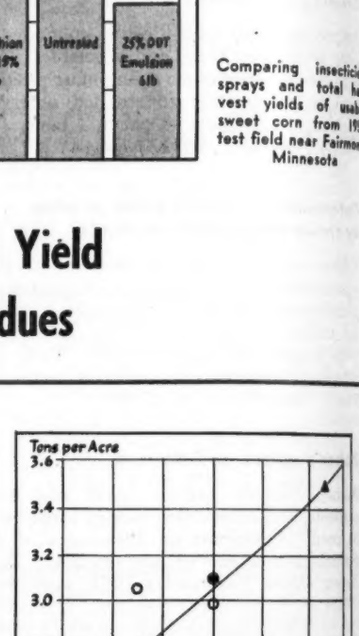
Controls Borer, Increases Usable Corn Yield Without Introducing Undesirable Residues

Obtains additional 0.183 ton sweet corn for every pound of ryania plus 1/30 pound n-propyl isome applied per acre

●

Project undertaken by Dr. Donald F. Starr, Paul Ferguson and J. T. Schultz of S. B. Penick & Co., with the cooperation of H. E. Blesi and D. R. Montgomery of Fairmont Canning Co.





PROBLEM: To control the European corn borer in the field and to secure only clean sweet corn for canning and freezing, Fairmont Canning Company, Fairmont, Minn., wanted an insecticide which would not leave undesirable residues on either the edible product or on the silage.

When DDT and EPN are applied, residues are found on the silage, which may be eventually consumed by dairy herds. Parathion controls the borers effectively and introduces no residue problem on silage if applied two weeks before harvest, but all who handle it must wear protective clothing and a respirator.

Solution: Full scale field tests were arranged near Fairmont for the 1950 and 1951 seasons, using various amounts and combinations

Insecticide	Pounds per acre	Percent Reduction of Borer Pop. 1950[a]	Percent Reduction of Borer Pop. 1951[b]	Percent Infestation of Ears: Tip 1950	Tip 1951	Side 1950	Side 1951	Net Yield of Corn Tons per acre 1950	Net Yield of Corn Tons per acre 1951
Ryania, 100%	6[c]	86	81	20	22	8	4	2.99	3.11
Ryania, 100%	3	72	65	27	23	14	7	3.04	2.76
Ryanexcel 96-3	6	—	76	—	18	—	5	—	3.55
Ryanexcel 96-3	3	74	64	23	19	8	7	2.97	3.06
DDT, Emul. 25%	6	97	55	13	15	4	8	2.97	2.22
Parathion, WP 15%	3	74	86	21	15	8	6	3.33	3.14
Untreated	—	(430)[d]	(251)[d]	35	28	15	12	2.55	2.48
Difference required for significance, 5%		14	15	—	6	—	6	—	0.43

Notes:

[a] — Three applications of 35 gal/acre were made in 1950. The first was on June 29, 30; the second July 7, 8 and the third July 15, 16.

[b] — Two applications 6 days apart were made in 1951 beginning July 17, 18.

[c] — Fifty gal/acre were applied instead of 35.

[d] — The corn borer population/100 plants is shown.

Effect of various amounts of ryania insecticides on usable sweet corn yield. Out of 10 results, only one failed to follow the line representing relationship between pounds of ryania and tons of usable corn

of new insecticides — ryania and n-propyl isome (Ryanexcel). These materials were included in the testimony of Dr. A. J. Lehman at the FDA residue tolerance hearings of May 22, 1950 as "substances which are known to be deleterious but which, in my opinion, create no public health hazards if used in the ways described by witnesses as constituting good agricultural practice."

Applications were made with commercial equipment in 50 to 80 acre fields of sweet corn. Low-gallonage sprays (35 gal/acre) were applied using a high clearance sprayer. J. D. Barnard and B. L. Yahnke of Green Giant Co., Le Sueur, Minn., who had practical experience with ryania in low-gallonage sprays, have been able to apply 6 lb of ryania at the rate of 25 gal/acre using three T53063 nozzles per row. (See following article which describes sprayer.)

Dusts were applied with both aeroplane and ground dusters. In applying dust from aeroplanes, 12 rows were covered with each pass of the plane, so that 24 row plots received two passes each. Sixteen guard rows between these plots seemed consistent with available space and minimum interference from drift.

Ground dust applications were made with a duster mounted on the high-clearance sprayer. There were two dust nozzles per row with eight rows dusted at one time.

In the 1950 tests, applications began when there were 100 to 250 egg masses/100 plants and moth flight had begun. Three applications were made eight days apart.

In 1951, two applications were made 5 days apart, beginning when there were 200 to 300 borers/100 plants and the moths had been flying for three weeks. In both years, moth flight started when heat unit accumulation amounted to 610-637 mean-degree-days over 50°F. However, both seasons were classified as having light borer infestation.

Results: In 19 different comparisons, ryania insecticides showed increases in yield from 0.06 to 1.11 tons/acre over corresponding untreated plots. For every pound of ryania, in either dust or spray form, applied per acre, an additional 0.096 ton of usable corn was obtained. For every pound of ryania plus 1/30 lb n-propyl isome applied per acre, an additional 0.183 ton of usable corn was obtained. No plant injury was observed when using these pesticides.

Table shows noticeable reduction of tip and side damage of the sweet corn ears. The reduction in side damage is more important, since it is more difficult to trim side damage than tip damage in the processing plant.

Ground application gives better control than using aeroplanes to apply insecticide dusts. Air dusting 40 lb/acre of Ryanexcel 15-0.5 in 1951 resulted in a net corn yield of 2.63 tons/acre and a 45% borer reduction.

Ground dusting with only 30 lb/acre of the same product yielded 3.19 tons/acre and reduced borer infestation 60%. Other insecticides and ryania combinations gave similar results.

40% ryania was best for ground dusting (1950 tests reduced borer population by 94%) Ryanexcel 15-0.5 was best for plane dusting because 40% ryania is too fluffy, which reduces the amount which can be loaded into the hopper and also increases the difficulty of applying the dust to the field at the exact spot where it is needed.

The 1951 results are especially important because applications were delayed one to two weeks past the recommended time for the beginning of borer control. The data indicate that late applications of ryania, Ryanexcel and parathion were well worth time and expense of application.

(*Continued on next page*)

HANDLES FLUID FOODS
SAFELY • SIMPLY • SPEEDILY

No "cream-puff" application is Wagner Baking Company's use of TYGON TUBING. Throughout their plant, this glass clear, plastic "pipe" is used to convey milk and egg mixtures, pie fillings, and pie toppings. Some of these are surprisingly corrosive — all are sensitive to the slightest contamination.

SAFETY: The non-toxicity and negligible extractibility of TYGON Beverage TUBING insures complete safety in the handling of the most sensitive foods or liquids. The permanently glass-like inner surface guarantees complete cleaning. Both bactericidal treatments or steam sterilizations are possible.

SIMPLICITY: The long-lasting flexibility, light weight and abrasion resistance of TYGON TUBING make it easy to use. A few simple connections and you can go anywhere in the plant — around corners, up to the ceiling, down to the floor. It's practically kinkless, too.

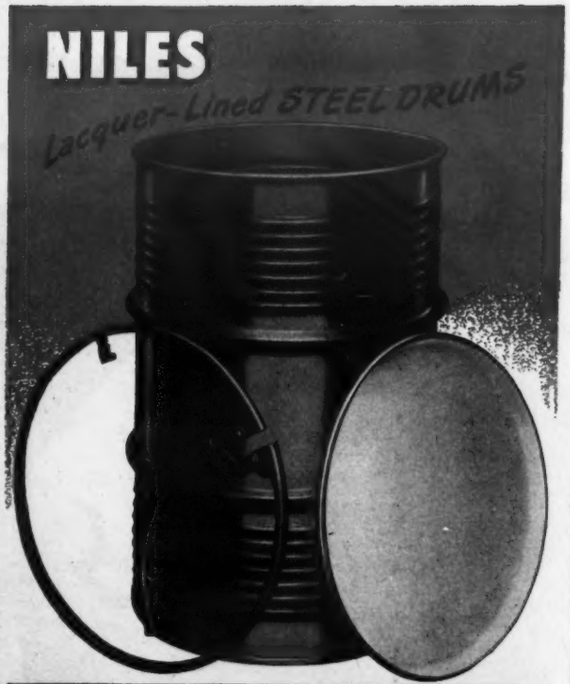
SPEED: TYGON TUBING speeds fluid transmission from start to finish. The smooth inner wall gives easier connections, faster flow, quicker cleaning. The high clarity permits rapid inspection — better flow control.

TYGON *flexible plastic* TUBING

TYGON TUBING is made in standard or specially sized bores up to 2" ID. Outer braid reinforcement is also available for pressure applications. Write, today, for the free Bulletin T-77 containing complete technical information. Address: U. S. STONEWARE, Akron 9, Ohio.

146C

When inquiring check FP 3924 on handy form, pgs. 2-3



KEEP FOODS FLAVOR-SEALED
Economically

The high strength of steel plus the complete neutrality of the durable-finish lacquer lining in NILES drums produce a combination made-to-order for the food and beverage industries. Even difficult foods retain both *flavor and color*, when packed and shipped in NILES Lacquer-Lined Steel Drums. Because of long life . . . both of the steel and the permanent lacquer lining . . . NILES Drums pay off in lower gross container cost, in less food spoilage and loss, in lower handling costs and many other ways . . . all adding up to reductions in operating costs.

NILES Lacquer-Lined Steel Drums may be had with tight head or removable head. In either case, NILES Drums always provide a liquid-tight seal indefinitely.

Write today for complete information to —

NILES STEEL PRODUCTS DIVISION
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463 Walnut St., Niles, Ohio

REPUBLIC STEEL
NILES
METAL BARRELS AND DRUMS

When inquiring check FP 3925 on handy form, pgs. 2-3

(*Continued from preceding page*)

To control European corn borer the following was found most practical:

Ryania 40% dust at 30-35 lb/acre
Ryanexcel 15-0.5 dust at 30-35 lb/acre
Ryania 100% spray at 6 lb/acre
Ryanexcel 96-3 spray at 3 or 6 lb/acre

(Ryania and Ryanexcel insecticides were supplied by S. B. Penick Company, Dept. FP, 50 Church St., New York 8, N. Y. For more information check FP 3926 on handy form, pages 2 and 3. All other insecticides were purchased by Fairmont Canning Company from Midwestern suppliers.)

(Northrup-King Hybrid 407 sweet corn used in the test was bred by Northrup, King & Company, Dept. FP, Minneapolis 13, Minn. For more information check FP 3927 on handy form, pages 2 and 3.)

(Nozzles T53063 are manufactured by Spray Engineering Co., Dept. FP, 113 Central St., Somerville 45, Mass. For more information check FP 3928 on handy form, pages 2 and 3.)

Safety emphasized in poster on parathion handling . . .

tells user and formulator how to care for equipment, clean up spillage, combat poisoning

Uses: Wall poster gives detailed instructions for handling parathion, the highly toxic insecticide. Intended for both the formulator and the user.

Description: The black and red on buff poster, two by three feet in size, is illustrated with eye-catching drawings of five items of protective equipment which should be worn while working with the material: goggles, mask, apron, gloves, and boots.

In addition to rules, precautions, and instructions for equipment care, the poster contains directions to be followed in case of accidental spillage and a first aid treatment to be given if symptoms of poisoning occur.

(Poster is being distributed by Monsanto Chemical Company, Dept. FP, St. Louis 4, Mo. . . . or for more information check FP 3929 on handy form, pages 2 & 3.)

Sprays without injuring tall row crops . . .

self-propelled power sprayer mounted on standard tractor, provides 6 ft 4¼ in crop clearance

Uses: For controlling weeds, insects, diseases in tall row crops.

Features: Sprayer is built around a standard, proven farm tractor in which the wheel and axles are removed and re-assembled so power is carried overhead through stub axles and a pair of roller chains. This provides a row height clearance of 6′ 4¼″. Tank is built close to the ground to stabilize the unit when operating in hilly country.

Spray boom may be front or rear mounted, is adjustable in height from 18″ to 6½′ by means of a hydraulic ram, controlled near the operator's seat. Special Finish X is used on boom and tank to make them corrosion resistant. This eliminates rust and chemical action within the sprayer which has been the greatest source of nozzle plugging.

Sprayer is equipped with 230 gal tank with positive

Increased Profits thru controlled production

You don't have to play a guessing game with production count when Productimeters are installed on processing machines to give you the exact count!

They eliminate profit-eating "guess-work"...save valuable time...provide accurate records for all departments. Model 6-HF-3-1 Can Counter on Sealing Machine (above) is one of many installations adapted for food packing plants.

Send for Catalog 51

DURANT MANUFACTURING COMPANY
1951 N. Buffum Street, Milwaukee 1, Wisconsin
151 Orange Street, Providence 3, R. I.
Representatives in Principal Cities

PRODUCTIMETERS SINCE 1879 *Count Everything*

When inquiring check FP 3930 on handy form, pgs. 2-3

2-SHAFT MIXER FAMOUS FOR SUPREME EFFICIENCY

GROEN
STAINLESS STEEL
STEAM JACKETED
TWIN-SHAFT
MIXER KETTLE

MODEL TA. . . . noted industry-wide for heavy duty, double action 2-shaft performance. Meets strictest SANITARY codes. Enclosed vertical motor drives: (1) a slow speed shaft with flexible finger-like contour-fitting scrapers; and (2) a high speed shaft using selected mixer. Instantly demountable shafts make agitator parts removable in few seconds. . . yet can't separate in operation. A great mixer! Ask for Bulletin TAL-2.

ROTA-THERM HIGH SPEED JACKET AVAILABLE

All stainless advantages PLUS fastest cooking ever known. Write for Bulletin RT-1.

GROEN MFG. CO. 4533 W. Armitage Ave., Chicago 39, Ill.
30 Church St., New York 7; 7 Front St., San Francisco 11

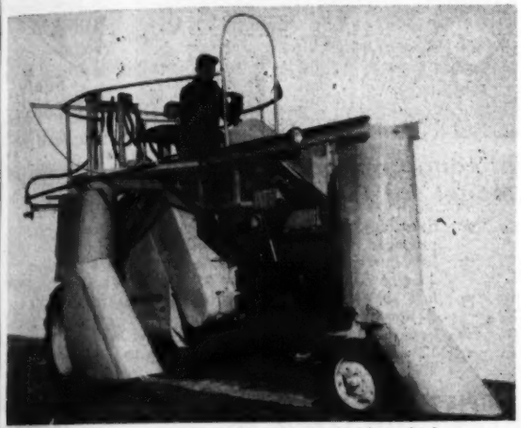
half a century of fine kettles

When inquiring check FP 3931 on handy form, pgs. 2-3

mechanical agitation. Will maintain all wettable powders and other insoluble chemicals in solution including ryania.

Operator is fully protected by guards against low hanging telephone wires and other hazards. All of the controls and gages are brought up to within easy reach of the operator.

Description: Power is furnished by a John Deere Model M tractor engine. The carrier is built with heavy



High clearance sprayer with wheel shields, which are optional equipment

I beams to stand up under continuous usage. Front wheel has narrow row crop tread and rear wheels are adjustable so tread can be from 76 to 94".

Overall height to top of driver's guard is 11' 4", overall length is 14', and overall width is 7' 7½" (drive wheel pickup guards removed). Turning radius is 11' 6".

Tank is of heavy reinforced and baffled 12 ga. steel. A 20 x 20" clean-out cover is bolted on top of tank. Has 6" diameter removable cover for filling. Tank can be easily removed from sprayer. Tank bottom has 1" IPT drain.

Standard machine is equipped with an eight-row, 26' boom of 1 5/16" heavy seamless steel tube. Nozzle openings (⅛" IPT) spaced every 10", gives any required nozzle or row crop extension spacing.

(Hy-Row Sprayer is assembled as a complete unit by the O. W. Kromer Co., Dept. FP, 1120 Emerson Ave. North, Minneapolis 1, Minn. . . . or for more information check FP 3932 on handy form, pages 2 and 3.)

Low residual toxicity credited to nitroparaffin insecticide

A pest and crop insecticide derived from the nitroparaffins and reported to be below DDT in mammalian toxicity is thoroughly presented in a new 16-page, full-color brochure. The lower toxicity apparently results because the residue is lost more rapidly under field conditions than most other chlorinated insecticides.

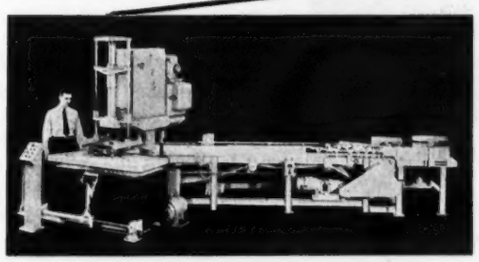
Brochure covers application, description, formulations, physical and chemical properties, toxicity data, and handling and storage in a comprehensive manner. "Dilan" brochure is issued by the Agricultural Division, Commerical Solvents Corporation, Dept. FP, 17 East 42nd Street, New York 17, N. Y. When inquiring specify FP 3933 on handy form, pages 2 and 3.

When looking for lower cost in Food Packing...

CHECK WITH BARNES

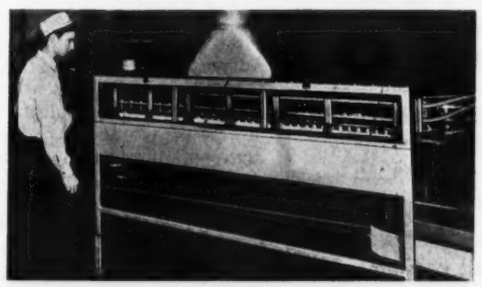
The products and installations we have made for the food industry are many and varied. However, each has one important feature in common . . . it has helped a food packer do a better job at less cost. These products and installations have resulted from our work in collaboration with food packers on specific problems. If you have similar or other problems in your plant it will pay you to talk to a Barnes' process engineer. There is no obligation for this service.

Over 500 Cans Unloaded per Minute

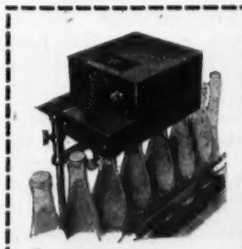


This unloader accommodates both rectangular and round cans. It is provided with a special rotary can unscrambler and a long conveyor to accommodate hand casing of cans containing whole hams. It unloads up to 600 cans per minute depending upon size and shape of cans.

Production Jar Washer



This is one of our newest items for the glass packer. Jars, prior to entering the washer, are inverted and enter the washer with open end down. A fine spray of hot water under high pressure is applied to both inside and outside of jars as they pass through the enclosed washer.



Electronic Detector

This efficient unit detects missing closures. It has full automatic operation, is single, fast and dependable. It has a wide range of application, prevents loss of product and minimizes line down time.

Other BARNES Processing Equipment

Automatic Retort Basket Loaders and Unloaders
Packaged Can Unloaders
Glass Handling Machines
Special Conveyors
Tray Loader
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FREE ADDITIONAL DATA on these and other time and money savers for the food packer will be sent upon request. Write today. Ask for bulletin P-552

W. F. and JOHN BARNES

PROCESS EQUIPMENT DIVISION 820 SOUTH WATER STREET, ROCKFORD, ILLINOIS

New modern cook room with aseptic canning provides 2 important features

Canners planning on expanding or opening new plants should carefully consider the Martin Aseptic Canning System for two very important reasons. For instance:

1. Savings in labor alone justifies purchase in short time

The labor savings effected with the Martin Aseptic Canning System are attractive. Two men are eliminated on retort and as many as 6 or more ordinarily utilized on "strapping-off" are also eliminated. In addition, processing time is amazingly short. For example: A No. 10 tin of pumpkin ordinarily requires 3-½ hours cooking time and a No. 2 can of Cream-style corn, 80 minutes. With the Martin System, these foods are processed in approximately 20 and 30 seconds respectively. Full flexibility accommodates all standard-sized containers . . . and cold filling means *no after cooling*.

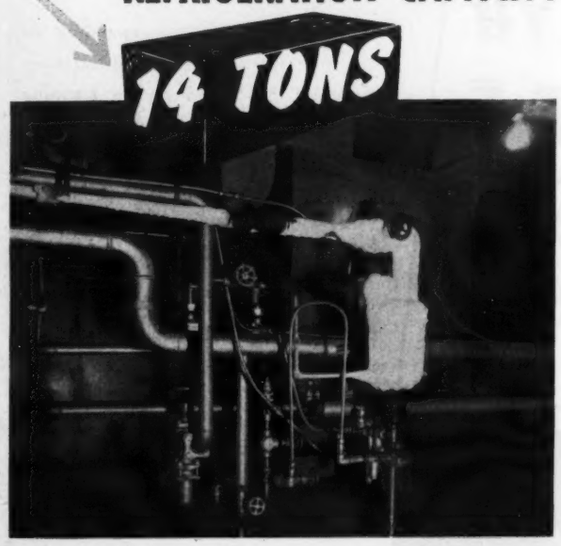
2. Cost of original installation is low

The original equipment cost of the Martin Aseptic Canning System is lower than conventional equipment. No retorts are needed and floor space is considerably less. In fact, the Martin Aseptic Canning System with all its modern advantages is the least expensive to install.

Discover how easily you can gain very high sterilization values — thus extending your margin of safety — without impairment or deterioration of product quality. Write to W. F. and John Barnes Company, 301 South Water Street, Rockford, Illinois.

When inquiring check FP 3934 on handy form, pgs. 2-3

ARMSTRONG PURGER UPS REFRIGERATION CAPACITY



At Velvet Freeze, Inc., Ice Cream . . .

VELVET FREEZE, INC., Kansas City, uses an Armstrong Forged Steel Purger to keep their system free of air and other non-condensables and it is paying off handsomely. The purger has reduced head pressure 30 lbs. Since each 4 lbs. excess head pressure reduces capacity 1%, a total of 14 tons has been restored to Velvet Freeze's 185 ton system. Other benefits: In 6 months, the Purger saved 1500 lbs. of ammonia—$255. Power costs were reduced $274 per month. In less than a month the Purger paid for itself several times over.

Check your system for excess head pressures. If it's high, the Armstrong Purger offers you a real opportunity to increase your capacity. In any case, the benefits of Armstrong automatic purging are worthy of your earliest investigation. For full details . . .

SEND FOR BULLETIN 192
explains all Armstrong Purgers, their benefits and why you get them.

ARMSTRONG MACHINE WORKS
881 Maple Street • Three Rivers, Michigan

When inquiring check FP 3935 on handy form, pgs. 2-3

High stability credited to fungicide-bactericide . . .

controls grape black rot, cereal rusts and smuts, powdery mildews, damping-off

Uses: Suggested for use as an eradicant and protective spray for apple scab and other foliage diseases where timing is difficult and where a non-phytotoxic eradicant is required. Also, for control of grape black rot, cereal rusts, and powdery mildews (except rose). May find value for control of foliage fungus diseases of potatoes and certain foliage diseases of cucurbits and cotton.

Other uses are: seed treatment of vegetables for prevention of seed decay and damping-off; seed treatment of cereals for smut control and for control of barley stripe and Helminthosporium seedling blight of oats; seed treatment of cotton for control of anthracnose; and seed treatment of field corn for control of seed decay and damping-off.

Features: Compound is stable under a variety of conditions and is adequately resistant to the effects of heat, light, moisture, and air. Observations indicate that the compound has very slight volatility and upon prolonged weathering, is broken down into water-soluble degradation products.

Description: Compound 50-CS-46 is a highly chlorinated organic mercury compound whose molecular formula is $C_{11}H_7Cl_6O_2NHg$. Mercury content is 33%.

(Product of the Velsicol Corporation, Dept. FP, 330 East Grand Avenue, Chicago 11, Ill. . . . or for more information check FP 3936 on handy form, pages 2 & 3.)

Urea, with 46% nitrogen content, is excellent plant food . . .

as fertilizer material compares very favorably with ammonium nitrate and costs less to transport

Advantages of urea as a plant food are not as widely known as the subject merits. USDA has conducted experiments in order to evaluate urea as a plant food, and it reports that "urea proved uniformly to be an excellent source of nitrogen for plants." The very high nitrogen content, 46%, is second only to that of ammonia. However, ammonia, being a gas, presents special problems of handling, application, and transportation, whereas crystalline urea poses no such problems and may be handled, stored, and shipped with complete safety.

Urea as a fertilizer material compares very favorably with ammonium nitrate, its chief current competitor. Furthermore, the higher nitrogen content of urea offers lower transportation charges, lowering still further the cost of delivered urea nitrogen.

Urea for fertilizer may be applied directly, but is usually sold to the grower mixed with other ingredients to prevent caking, since commercially pure urea is somewhat hygroscopic. When urea is dissolved in soil liquids, it hydrolyzes and is converted to ammonium carbonate by action of the soil bacteria and certain enzymes. The ammonium bicarbonate reacts with the soil acids as quickly as it is formed to release ammoniacal nitrogen which is comparatively resistant to leaching. As a result, the acidity of the soil is reduced, and the ammoniacal nitrogen becomes in part chemically held in the extremely fine particles of clay and organic matter in the soil.

Urea-ammonia liquids for use in manufacture of "mixed goods" fertilizer are now well established in the industry. Their low cost of production, high nitrogen content yield-

ALLIGATOR®
CONVEYOR BELT LACING

Every Tooth A Vise*

in Long Continuous Lengths . . . made of Monel for Food Plants

- ★ Excellent for flat conveyors, package conveyors, portable loaders, etc. specify Monel.
- ★ In canneries where corrosion or rust is a problem specify Alligator made of Monel.
- ★ For magnetic separators or anti-sparking specify Alligator made of Everdur.
- ★ Separable and smooth on both sides.
- ★ 12 sizes. For belts from 1/16" to 5/8" thick—and *any width.*

Order from Your Supply House. Ask for Bulletin A-60.

FLEXIBLE STEEL LACING CO. 4639 Lexington St., Chicago 44, Ill.

JUST A HAMMER TO APPLY IT

When inquiring check FP 3937 on handy form, pgs. 2-3

Handiest Location in PITTSBURGH

Hotel Pittsburgher
PITTSBURGH, PA.

Right in the heart of town

Make the PITTSBURGHER your stopping place on every motor trip. Located right in the heart of town . . . easily reached from all major highways. Enjoy the finest in modern facilities, too . . . 400 rooms each with free radio, bath and circulating ice water; 125 rooms with television. Garage service.

a Knott Hotel

JOSEPH F. DUDDY, MANAGER

ing high analysis fertilizers, and low equivalent acidity, make "mixed goods" having urea-ammonia liquids as their nitrogen source attractive to producers and growers alike.

A growing method of applying urea is to spray a solution of the compound directly onto the foliage where it is absorbed by the leaves. It is necessary to spray apple and certain other fruit trees when the blossoms fall.

At this time extra nitrogen is needed by the trees, and when applied to the soil may not be available because of insufficient rain to take it to the roots. Urea may be dissolved either in an insecticide, fungicide, or combination spray solution. When sprayed in solution on young leaves, urea is absorbed through the pores, and excellent results have been obtained by feeding trees in this way. Like other solubles, urea is quickly available to crops. Most agricultural crops will assimilate nitrogen in the form of urea, ammoniacal, or nitrate nitrogen. (Summarized from "Synthetic Urea by the Pechiney Process," Foster Wheeler Corp., Dept. FP, 165 Broadway, New York 6, N. Y.)

Fungicide found effective as seed protectant, foliage spray . . .

can be applied in concentrated or dilute form in present model slurry treaters

Uses: Fungicide is recommended for application both as a foliage spray and as a seed protectant.

Features: As a seed protectant (solution method of treatment), following attributes are reported: Effective against organisms harmful to seeds, low order of toxicity to seeds as well as to warm-blooded animals, does not dust from treated seed, quickly detected on treated seed, completely soluble in water, can be applied in concentrated or dilute form in present model slurry treaters. Low freezing point allows application in cold weather, dye tracer can be used to assure thorough application, and non-toxicity to *Azotobacter agile* extend usefulness of the solution.

As a foliage spray, blight, rust, mold, leaf spot, dollar spot, or brown patch have been effectively controlled on such plants as tomatoes, potatoes, and sweet corn.

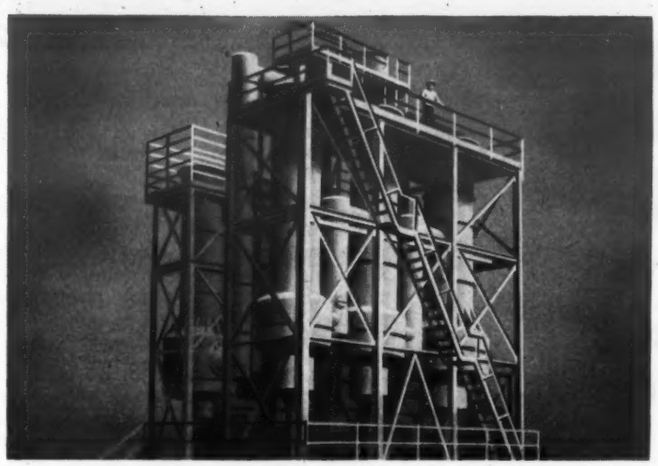
Description: Vancide 51 is a water solution of the sodium salts of dimethyl dithiocarbamic acid and 2-mercaptobenzo-thiazole with a total of 30% active ingredient. Active ingredient is non-volatile, product is stable from –20 to 107°C. It forms insoluble salts with iron, copper, zinc, and other heavy metals.

(Product of R. T. Vanderbilt Co., Inc., Dept. FP, 230 Park Avenue, New York 17, N. Y. . . . or for more information check CP 3939 on handy form, pages 2 & 3.)

Handbook on special harvesting units

Explains specialized farm equipment manufactured by the firm. Diagrams, photographs, and specifications are detailed for Tractor-Rower, Cut-Lode, combine reels, lifter guards, crop guards, disc frames, and grain lifters. Discusses two-stage "Humethod" of green crop harvesting.

The equipment handles green peas, lima beans, spinach and green leafy vegetables, small grains, soybeans and other viney crops. The 1952 Hume Handbook of 30 pages is issued by the H. D. Hume Co., Dept. FP, 812 Main St., Mendota, Ill. When inquiring specify FP 3940 on handy form, pages 2 and 3.



Need someone with all the answers?

Thinking of going into the concentrate business? We can tell you this much from experience: your job will be different. Your plant and your facilities are different from anyone else's right now. And maybe you'll be processing a product no one else has tried. So there's no pattern you can follow exactly. Your concentrator installation should be tailor-made to fit just your requirements.

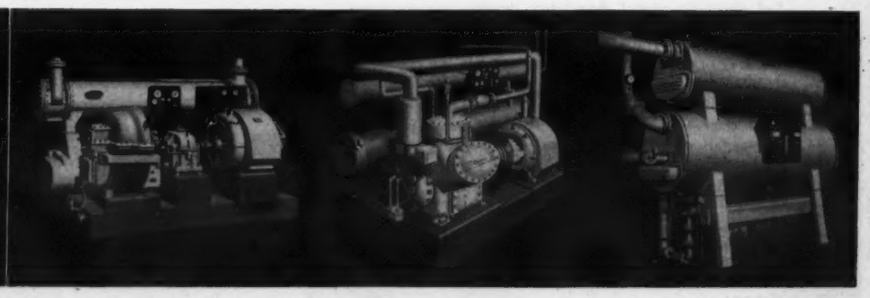
But you won't be all alone in a strange new world. Because we've been in the concentrate business for some time now and there will probably be some basic problems in your job we've seen and solved before. We've worked with low temperature applications, and high. We've been in on batch *and* continuous operations. Single *and* multiple effects. Your process might involve undissolved solids. Or heavy, viscous materials. Or a product that's easily damaged by heat. We've worked with all of these and our experience is yours.

So even though your application will be different from anyone else's, it's bound to benefit from the experience we've already had in food concentrating.

Meanwhile, wouldn't you like to know more about the Carrier Concentrator and its various types? Just write Carrier Corporation, Syracuse, N. Y.

Carrier

AIR CONDITIONING
REFRIGERATION
INDUSTRIAL EQUIPMENT



We have all the answers for the *refrigeration* side of your Carrier Concentrator installation, too. Only Carrier gives you this choice: for motor or turbine drive, the Carrier Centrifugal Refrigerating Machine *(left)*; for motor, turbine, gas engine or Diesel drive, the Carrier packaged Reciprocating Refrigerating Machine *(center)*; for high or low pressure steam, the Carrier Absorption Refrigerating Machine *(right)*.

When inquiring check FP 3941 on handy form, pgs. 2-3

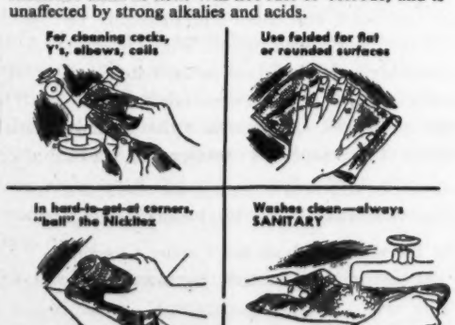
NEW CLEANING TOOL LASTS MONTHS LONGER

"Wear-Ever Nickltex outlasted 144 curled wire sponges"*

This comment is typical of the enthusiastic reports received about NICKLTEX. Each user relates the same experience: NICKLTEX lasts much longer than ordinary cleaning implements. That's because it's made from high nickel-alloy wire that's unusually durable—woven into a flexible mesh that withstands the abuse of daily usage. This product of precision craftsmanship outlasts any sponge or scour cloth on the market today!

CLEANS EASIER—NICKLTEX cleans more easily and more completely because it cuts through dirt—doesn't just rub it off. It's made from flattened, diamond-drawn wire—so woven that each individual wire *acts as a tiny chisel.* This highly flexible mesh cloth can be used flat, balled or like a shoe-shine cloth—gets into the tightest corners.

SANITARY—SPLINTER-PROOF—There are no splinters, ravellings or metallic surface deposits when you use NICKLTEX. Easily cleaned by washing in soap and water or under steam. Dirt particles drop through the mesh, leaving NICKLTEX clean as new. Will not rust or corrode, and is unaffected by strong alkalies and acids.


For cleaning cocks, Y's, elbows, coils
Use folded for flat or rounded surfaces
In hard-to-get-at corners, "ball" the Nickltex
Washes clean—always SANITARY

Cut cleaning costs! Ask your supply house about Wear-Ever Nickltex. Or mail coupon today!

*Name on request

THE ALUMINUM COOKING UTENSIL COMPANY
6705 Wear-Ever Building • New Kensington, Pa.
(Manufacturers of Wear-Ever Aluminum and Professional Cutlery)

( ) Have your representative show me why Wear-Ever NICKLTEX lasts months longer than ordinary scour cloths and sponges.

( ) Enter our trial order for a case of 12 Nickltex Flex-cloths at $11.40.

NAME .....

POSITION .....

Cut out, clip to your letterhead and mail today

When inquiring check FP 3942 on handy form, pgs. 2-3

New Literature

Oils from 24 plant families in vol V of treatise

Present work, like two previous volumes of the series, describes the production, physiochemical properties, chemical composition, and uses of individual essential oils. Grouping of the oils is according to the botanical families to which the corresponding plants belong, but the 24 families included in this work are not arranged according to any taxonomic system.

Some of the oils treated in this volume are of great importance to the flavor chemist: nutmeg, cardamom, ginger, pepper, cubeb, and star anise. The 45 illustrations show in main agricultural and manufacturing methods from the various producing regions of the world involved. To obtain "The Essential Oils, Vol V", remit $9.75 direct to D. Van Nostrand Co., Inc., Dept. FP, 250 Fourth Ave., New York, N. Y. When inquiring specify FP 3943 on handy form, pages 2 and 3.

Outlines fluidized conveying equipment, techniques

Adequately illustrated, this eight-page bulletin explains and describes pneumatic conveying equipment for fluidized pulverized materials. Among the advantages reported for the equipment are cleanliness and low power requirements. The many photographs cover a variety of applications and work conditions. Bul FH-2 is issued by Fuller Company, Dept. FP, Catasauqua, Pa. When inquiring specify FP 3944 on handy form, pages 2 and 3.

Centralized lubrication systems are explained in booklet

Advantages of manufacturer's centralized systems of lubrication are reviewed in 8-page, illustrated bulletin. Systems are suitable for lubricating all types of industrial machines, and incorporate these features as reported by the manufacturer: 1) saves time by lubricating all bearings in one minute or less, with equipment in full operation; 2) saves men by lubricating more bearings than 10 men; 3) saves as much as 20% power through friction reduction; 4) increases bearing life from 5 to 25 times; 5) saves at least 75% of lubricant by eliminating waste; 6) increases production by eliminating shutdowns to lubricate or to replace bearings.

"Studies in Centralized Lubrication" is issued by The Farval Corporation, Dept. FP, 3249 E. 80th St., Cleveland 4, Ohio. When inquiring specify FP 3945 on handy form, pages 2 and 3.

Gives description, maintenance hints on electrical gear motors

Eight-page, two-color bulletin on fractional-hp gear motors describes applications, and outlines a simple method of determining correct horsepower requirements with the use of an ordinary pipe wrench and fish scale.

A section of maintenance pointers, is included as well as cut-away drawings, selection charts, and dimension tables for both concentric-shaft and right-angle shaft gear motors.

Bul GEA-5678 is issued by General Electric, Dept. FP, Schenectady, N. Y. When inquiring specify FP 3946 on handy form, pages 2 and 3.

Evaluating scent, flavor by panel technique

Article of 6 pages on various aspects of odor and flavor testing by company's trained organoleptic panel. Defines odor and flavor. Describes methodology of classification and panel testing, panel selection, odors by rating scale, tests based on binomial theorem, and sensory testing.

"Evaluation of Odors and Flavors by the Panel Technique" by K. S. Konigsbacher, W. H. Danker, and R. L. Evans available from Evans Research and Development Corp., Dept. FP, 250 E. 43rd St., New York 17, N. Y. When inquiring, specify FP 3947 on handy form, pages 2 and 3.

Usable summary of fluid flow theory does not use calculus

Author McClain's decision to develop modern fluid flow theory without the use of calculus has resulted in a practical book which can be readily followed by the reader interested in fluid flow rather than mathematics. Illustrated with line drawings and a minimum number of plots, the 123-page book is divided into four main sections. These follow along conventional lines in developing the general theory of flow.

In order to do away with the vagary surrounding some concepts, treatment adheres closely to dimensional analysis. Therefore, chapter 1 establishes algebraic definitions for all properties of fluids used in the following theory. Chapter 2 launches into viscosity, its theory, measurement, and dimensions. Chapter 3, on the effect of piping on fluid flow, delves into streamline and turbulent flow, friction factors, pipes of non-circular cross-section, typical cases. Last chapter covers design practice in very concrete terms.

"Fluid Flow in Pipes" is not only a clearly written book for the struggling student, it is a handy guide to the engineer who does occasional work in this field. To obtain the book, remit $3.00 direct to The Industrial Press, Dept. FP, 148 Lafayette St., New York 13, N. Y. When inquiring specify FP 3948 on handy form, pages 2 and 3.

Sifter yields 2 to 8 sizes in single operation

Drawing and diagrams show dimensions of gyratory sifter. Table of wire cloth screen specs and illustrated mesh comparisons are presented in 8-page bulletin. Varied utility of sifter is freely illustrated. Applies to food products such as cocoanut, oatmeal, peppers, spices, starch and processing products such as chemicals, minerals, cork, feeds, etc.

Bul 07B6124B is available upon request from Allis-Chalmers Manufacturing Co., Dept. FP, 1151 S. 70th St., Milwaukee, Wis. When inquiring specify FP 3949 on handy form, pages 2 and 3.

Application of punched cards to industry and science

Primary aim of 506-page volume is to furnish sufficient information to permit the application of punched-card techniques to individual problems — whether in the laboratory, industrial plant, library, executive office. Additionally the text endeavors to set down present knowledge and experience so that better use of presently available punched card devices will be stimulated. In general, hand-sorted

edge-punched cards are discussed in greater detail than machine-sorted cards.

Part I is introductory and elementary. It contains sufficient information to enable an individual to set up and use a simple punched-card file. Part II consists of case histories of punched-card applications selected to show what already has been done. More general and theoretical in scope is Part III. Some of the chapters here consider the general problem of organizing information apart from punched-card techniques.

Part IV is a study as to the role that punched cards and related devices may eventually play in relationship to other methods for coping with information problems. Part V consists of a bibliography on uses of punched cards in connection with scientific information.

Chapters have been written by different authors with the entire work being edited by Robert S. Casey of W. A. Sheaffer Pen Co. and James W. Perry of Massachusetts Institute of Technology. To obtain "Punched Cards", remit $10 direct to Reinhold Publishing Corp., 330 W. 42nd St., New York, N. Y. When inquiring specify FP 3950 on handy form, pages 2 and 3.

Describes structural features of insulated buildings

Eight-page bulletin shows structural features of prefabricated insulated steel buildings. Standard units that can be used either in single or multiple series for erection of nearly any size industrial, warehouse, or large utility buildings are illustrated. Bul No. 107 is issued by the Brookville Mfg. Co., Dept. FP, Brookville, Pa. When inquiring specify FP 3951 on handy form, pages 2 and 3.

Eight pages present details on 2000-lb fork truck

Eight-page bulletin shows important construction and operating features of manufacturer's new Type FS 2000-lb fork truck. Photographs are used to "strip down" truck by major components, giving a closer look at design features. Complete construction details accompany each component photo. Other photos reveal how truck drives like an auto, how blind driving is eliminated, and how service and maintenance have been simplified.

Dimensions and specifications are covered in two pages. Action photos show truck at work. Last page pictures and describes 14 special attachments. Bul 1327, issued by Baker Industrial Truck Division of The Baker-Raulang Company, Dept. FP, 1250 W. 80th St., Cleveland 2, Ohio. When inquiring specify FP 3952 on handy form, pages 2 and 3.

Adds "know how" to production and development services

Twelve-page bulletin summarizes research, development, and manufacturing abilities available to solve industrial problems. Featured service is production of polyethylene plastic articles such as bottles, sheets, tubing, films, etc. Two-color bulletin pictures engineering designs which resulted from research investigations. Design features relate to automatic packaging machinery for can, glass, and carton production lines.

Bulletin integrates services and equipment offered in fields of machine design, plastics, glass, packaging, and metals. "How Emhart Can Help" is by Plax Corp., Box 1019, Hartford 1, Conn. When inquiring specify FP 3953 on handy form, pages 2 and 3.

pennsylvania company solves TOUGH water hose problems

Splattering food juices in a large Pennsylvania Cannery quickly deteriorated ordinary washdown hose. The hose covers turned flabby and scraped off on concrete floors. The exposed carcasses wore out prematurely with the destruction accelerated when workmen kinked the hose to control flow. All this cost time and money.

Could the problems be solved?

Republic's local Distributor thought so, and suggested a test run with Republic's Fairway Water Hose ... no custom-built hose necessary.

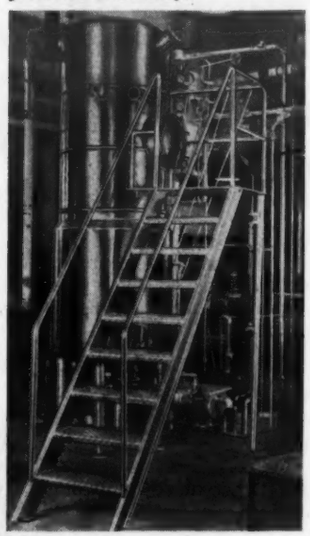
That test, begun 15 years ago, is still going on because the **hose never wore out!!!** The workmen are more efficient with the easy-handling Fairway Hose, and the company (now a confirmed Republic customer) is tickled to death since eliminating hose repair and replacement costs

Fairway Hose, available in all standard sizes in 50 ft., 100 ft. or long production lengths on reels or in bales, is just one of the many Republic Rubber Products designed for rugged duty in your plant.

For a free analysis of your requirements, simply mail your request to Republic Rubber Division, Youngstown, Ohio.

When inquiring check FP 3954 on handy form, pgs. 2-3

• Mojonnier Fruit Spread Cooker in plant of I.O.A. Foods, Cedar Rapids, Iowa. Used in making preserves and honey.



Vacuum Cooking of FRUIT SPREADS *means*

more pounds per batch

Mojonnier Vacuum Fruit Spread Cookers have capacities up to 4700 lbs. of raw product. This means less handling of materials, greater production with less labor.

One 42" Fruit Spread Cooker *equals*

Four 100 gallon kettles

more batches per day

Cooking is speeded up because higher heat-transfer rates can be obtained.

Higher heat-transfer rates speed cooking

more consumer appeal

Lower cooking temperatures mean better flavor and color. Damage to fruit is minimized, because product can be moved by air pressure or vacuum.

Pumps can be eliminated

For more information, send for Bulletin 215.

MOJONNIER BROS. CO., 4601 W. OHIO ST., CHICAGO 44, ILL.

Mojonnier Fruit Spread Cookers

OTHER MOJONNIER WIDELY USED FOOD PROCESSING UNITS INCLUDE: LO-TEMP EVAPORATORS • MULTIPLE EFFECT EVAPORATORS • VACUUM PANS • ZONE-CONTROL VATS • TUBULAR HEATERS • WATER CHILLERS COLD-WALL TANKS • GERMICIDAL FRUIT SCRUBBERS • INTERNAL TUBE COOLERS • VACUUM FILLERS • BOTTLE,CASE, CAN,CARTON AND QUICK-FREEZE CONVEYORS • BEVERAGE CARBONATING UNITS • DAIRY PROCESSING EQUIPMENT

When inquiring check FP 3955 on handy form, pgs. 2-3

NEW LITERATURE

Test data on distillation packing and columns

Tabulated and graphical test data in 15-page catalog show what various sizes of distillation packing can do with certain organic materials. Presented, for example, are: effect of various liquids on holdup and flooding velocities, efficiencies of protruded stainless steel packing in a one-foot-diameter column, effect of distillation rate on pressure drop, and variation of holdup with different test mixtures.

Also given are two drawing showing design of distributor plates and details of distillation columns for the laboratory. Bul 12 is issued by Scientific Development Co., Dept. FP, Box 795, State College, Pa. When inquiring specify FP 3956 on handy form, pages 2 and 3.

Selecting proper model featured in pallet truck bulletin

Two-color, 24-page bulletin illustrates and describes pallet trucks in capacities of 1000 to 15,000 lb. Practical information is given on factors influencing the choice of specific models. Single stroke models feature spring return handles, insuring upright position when not in use. Bulletin is issued by Barrett-Cravens Co., Dept. FP, 4609 S. Western Blvd., Chicago 9, Ill. When inquiring specify FP 3957 on handy form, pages 2 & 3.

35 abstracts from pickle, kraut technical school

Abstracts of 35 papers given at the 1952 Technical School for Pickle and Kraut Packers are bound in file size folder. Information presented by processors, supply industry personnel and government research and inspection officials includes: raw product grading, insect and disease control, what a government inspector looks for, identifying fermentation yeasts, enzymes affecting quality, heat penetration, pasteurization for fresh-pack pickles, causes of pickle bleaching, product deterioration prior to filling, off-flavor detection, flavor panels, sweetners, cloudiness in pickles, factory maintenance, and flooring for production rooms.

Pickle and kraut abstracts for 1952 meeting are available from Dr. F. W. Fabian, Michigan State College, Dept. FP, East Lansing, Mich.

Details in two volume edition baker's ingredients, machines, processing methods

Two-volume edition "Baking Science and Technology" has been brought out to supplement "Siebel's Manual for Bakers and Millers." New edition reflects the growing importance of technology to the industry and summarizes, as precisely as possible, scientific aspects of baking. It answers how and why certain baking reactions occur. There are five sections, divided as follows: Basic Science, Materials (ingredients), Baking Technology, Aspects of Cake Baking, and Bakery Equipment.

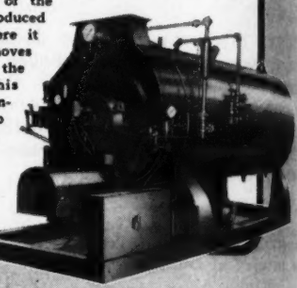
Materials are covered in 181 pages, thoroughly discussing all phases of purchasing and handling such ingredients as: whole, dried, and frozen eggs; whole, concentrated, and dry milk; lard; shortenings; butter and margarine; frying fats; sucrose, invert, and dextrose sugar; corn syrups; honey; malt; molasses; and wheat, rye, malted wheat, soybean, peanut, cottonseed, and potato flour.

The equipment section is well illustrated with diagrams and photos of the 24 major machines and instruments

3=5 when you use CYCLONIC COMBUSTION

Yes, 3 square feet of heating surface with Cyclonic Combustion equals 5 square feet of heating surface offered to you by other packaged boiler units.

The Cyclotherm Cyclonic Combustion Principle is an entirely new and amazingly different method of heat transfer in the boiler industry. Air enters the combustion chamber at extremely high velocity in a revolving spiral vortex which travels the entire length of the furnace. The fuel is introduced into the entering air where it is slowly consumed as it moves in a cyclonic motion down the combustion chamber. This highly luminous slow burning flame radiating heat to the fire tube through direct radiation and by convection, results in an unusually high rate of heat transfer.



Boilers are designed for oil or gas operation from 10 through 300 HP, 15 to 200 lbs. operating pressure. Full power operation from a cold start in 15 to 20 minutes. Savings up to 50% on maintenance. Guaranteed 80% efficiency.

CYCLOTHERM steam generators
CYCLOTHERM DIVISION UNITED STATES RADIATOR CORP.

CYCLOTHERM, DEPARTMENT 31, OSWEGO, NEW YORK

When inquiring check FP 3958 on handy form, pgs. 2-3

DAMASCUS TUBE COMPANY
STAINLESS STEEL TUBING AND PIPE
GREENVILLE, PENNSYLVANIA

A NEW SOURCE FOR

Stainless Tubing and Pipe . . .

SIZES 1/2" to 3"

Prompt Response to Your Inquiry

DAMASCUS TUBE COMPANY
STAINLESS STEEL TUBING AND PIPE
GREENVILLE, PENNSYLVANIA

When inquiring check FP 3959 on handy form, pgs. 2-3

discussed. Each unit is outlined as to function, place in the production line, and design principles. The author points out that except for small retail shops, bakeries are becoming highly mechanized.

Chapter on physical and chemical testing methods (52 pages) describes dough testing, mixograph, farinograph, extensimeter, extensograph, amylograph, mixatron, flour sampling, moisture determination (three methods), ash determination, total crude protein, crude gluten, starch and sugar determinations, diastatic activity determination, gas production measurements, flour color, and bread scoring.

To obtain "Baking Science and Technology" by E. J. Pyler (2 vol, 803 pages) remit $15 directly to Siebel Publishing Co., Dept. FP, 747 W. Jackson Blvd., Chicago 6, Ill. When inquiring specify FP 3960 on handy form, pages 2 and 3.

High-sudsing cleaner leaves surfaces film-free

Two-page bulletin in color tells of new general cleaning compound which will assure film-free equipment surfaces. Compound produces abundance of suds, in non-dusting, cuts grease, goes into solution instantly, rinses and drains freely leaving a thoroughly clean surface. "New Ditran" has been issued by The Diversey Corp., Dept. FP, 1820 Roscoe St., Chicago 13, Ill. When inquiring specify FP 3961 on handy form, pages 2 and 3.

Outlines features in planning high vacuum system

Introduction to 49-page bulletin summarizes important considerations in establishing high vacuum system. Selection of correct pumps, connections, gages, and traps is based on factors of time and speed desired, quantities of gas handled and pressure range. Chart of speed-pressure curves permits quick location of pump range.

Conductance chart presents effect of connecting tube sizes on efficiency of pump. Data is tabulated for the various pumps, which are freely pictured.

Nine organic liquid diffusion pumps are described and illustrated. Pumps utilize eccentric rotor with spring-operating moving vane and attain vacuums as low as 0.01 micron of mercury. Freezing and liquid air traps are described in addition to accessories such as gages, bell jars, rheostats, burners, etc.

Bul 10D is issued by Central Scientific Company, Dept. FP, 1700 Irving Park Rd., Chicago 13, Ill. When inquiring specify FP 3962 on handy form, pages 2 and 3.

Fully describes closures, lines for glass jars

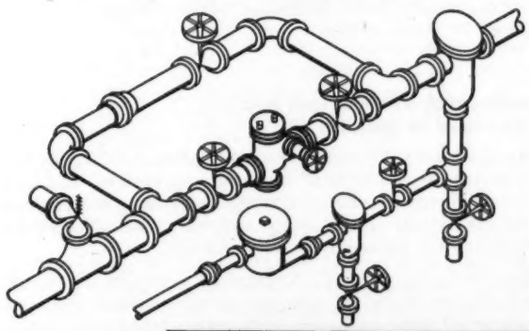
Full color, 40-page book aims toward simplifying selection and purchase of metal closures for glass-packed products.

Numerous drawings and photos are used to augment practical purchase hints. Information is given on screw, lug, mason, vent, and catsup cover caps. Liners are extensively discussed. Included in the book are samples of the following materials: oil paper, rayo paper, black oil paper (alkali), aluminum foil, inaseal, vinylite, saran, Y (polyethylene or polythene) and plastic.

Describes firm's quality control set-up, design service for closure decorating, and customer research laboratory. "Crown Closures-1952" is issued by Crown Cork and Seal Co., Dept. FP, Baltimore 3, Md. When inquiring specify FP 3963 on handy form, pages 2 and 3.

Can Your Pressure Regulators Match This Service Record?

... on a Steam Kettle for instance



THE INSTALLATION

On steam supply line to cooking kettle, Schoenling Brewing Company, Cincinnati.

VALVE SERVICE RATINGS

SERVICE LIFE:	16 years - 24 hours per day
MAINTENANCE COST:	None - simple servicing only
SPECIAL FEATURES:	Good pressure range - easy adjustment
SUITABILITY:	Steady flow - no pressure build-up
OPERATING RESULTS:	Accurate control of cooking process
PRICE:	Low - considering service life
AVAILABILITY:	Stock item - Crane line

THE HISTORY

Specifications for this installation called for a regulator to reduce main line steam supply at 100 psi to 30 psi, and automatically maintain the reduced pressure to cooker, 24 hours daily, without significant fluctuation.

A Crane Pressure Regulator with factory pre-set range was selected and properly installed with adequate, automatic drainage of the steam lines.

For 16 years, throughout its lifetime, the Crane Pressure Regulator did its job to the brewery's complete satisfaction. Never was it out of service; never did it require more than the simple prescribed periodic inspection. (Note: current model has renewable wearing parts; will virtually never wear out.)

THE VALVE

Crane No. 960 Brass Pressure Regulators are made for reducing steam or air pressures up to 250 pounds, to within 80% of inlet pressure. They are factory pre-set to operate within any of 4 ranges from 1 to 200 pounds, with easily selected outlet pressure within set range. Precision made, they are fully automatic, highly dependable, even under reasonable fluctuation of inlet pressure. All wearing parts renewable. See your Crane Catalog or Crane Representative for complete data.

The Complete Crane Line Meets All Valve Needs. That's Why
More Crane Valves Are Used Than Any Other Make!

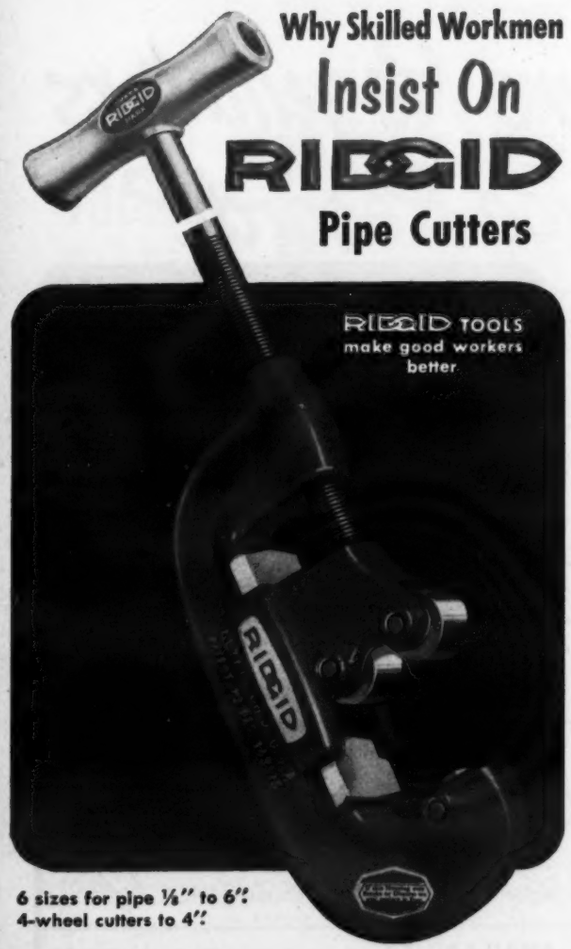
CRANE VALVES

CRANE CO., *General Offices:* 836 S. Michigan Ave., Chicago 5, Illinois
Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • PLUMBING • HEATING

When inquiring check FP 3964 on handy form, pgs. 2-3

Why Skilled Workmen
Insist On
RIDGID
Pipe Cutters



6 sizes for pipe ⅛" to 6".
4-wheel cutters to 4".

RIDGID Heavy-Duty Cutters assure you extra quick easy pipe cutting

★ High alloy thin-blade cutter wheels roll quickly through pipe with least effort—clean almost burrless cuts.

★ Special malleable housing guaranteed warp-proof, assures perfect tracking of cutter wheel—every tool factory tested.

★ Efficiency-balanced design for quick easy work—made for long hard service.

★ Order from your Supply House.

THE RIDGE TOOL COMPANY • ELYRIA, OHIO

RIDGID
Work-Saver Pipe Tools

When inquiring check FP 3965 on handy form, pgs. 2-3

NEW LITERATURE

Illustrates and describes 30 fans for industry

Sectional diagrams and brief description accompanies each of 30 fan types in 32-page catalog. Four-page section reviews correct method of selecting and installing proper fan. Duct resistance chart permits calculation of resistance losses in duct systems. Schematic illustrations and a list of 22 "Do's and Don'ts" review the right procedure for installing ventilation and exhaust units. Fans are designed for application in general ventilating, fume and dust removal, or direct application for product cooling and drying.

Three-color bulletin describes fans available in 300 sizes. Models range from residential unit powered by 1/3 hp motor to grain drying fans using 3, 5, and 10 hp motors. Cat 400 is issued by Chelsea Fan & Blower Co., Inc., Dept. FP, 639 South Ave., Plainfield, N. J. When inquiring specify FP 3966 on handy form, pages 2 and 3.

Horizontal, vertical unit heaters described in bulletin

Manufacturer's 12-page, two-color bulletin shows models of horizontal and vertical discharge unit heaters. Included in the bulletin are photos showing outstanding construction features, typical specifications, anticipated noise levels (in decibels) for various types of buildings.

Bul 1301 is issued by C. A. Dunham Company, Dept. FP, 400 W. Madison St., Chicago 6, Ill. When inquiring specify FP 3967 on handy form, pages 2 and 3.

128 charts in text help solve heat transfer problems

Feature of 336-page book is a group of 128 working charts from which a direct solution of heat transfer problems can be obtained for 70 fluids. The graphs are equal in accuracy to the equations from which they are derived.

Each chapter in the book consists of three parts. At the beginning of each chapter, the fundamental theory is discussed. Then, the equations relating to the evaluation of heat transfer coefficients and rates are developed. At the end of the chapter are presented the graphs referred to in the foregoing.

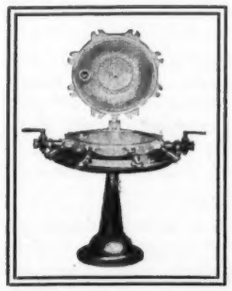
Of the six chapters in publication, the one on forced convection will be of particular interest to the practicing engineer since it covers forced convection of gases and liquids whether heating or cooling inside or outside of pipes. To obtain "Industrial Heat Transfer," remit $6 direct to The Industrial Press, Dept. FP, 148 Lafayette St., New York 13, N. Y. When inquiring specify FP 3968 on handy form, pages 2 and 3.

Explains and applies basic statistical concepts

Designed specifically for manufacturers who do not have available the regular services of a statitician, this guide explains fundamental statistical concepts and shows how to apply statistical methods in the control of manufacturing processes. Amplified are the basic arguments that underly statistical distribution, and these are then related to factory process variation.

Publication systematically covers four major aspects of the topic: 1) graphic presentation of process data; 2) construction of frequency histograms and curves; 3) estimation of factory process distributions and their relation to process

Filpaco COMMON SENSE DISC FILTER



Low-priced, versatile, moderate capacity filter for the Food Processing Industry

- Capacity for water at 25 lbs. pressure is more than 300 gal. for the first hour
- Uses inexpensive filter paper or cloth

Other "Filpaco" Products: Stainless Steel Tanks, Filter Presses, Portable Agitators, Sanitary Transfer Pumps, Conveyors, Stainless Steel Small-ware, Sanitary Fittings, Tygon Tubing, Filter Paper, Filter Cloth, Asbestos Filter Pads.

We will be pleased to discuss your filtration supply and equipment problems without obligation. Write today for further information.

FILPACO INDUSTRIES
The FILTER PAPER CO.
2436 S. Michigan Ave. Chicago 16, Ill.

When inquiring check FP 3969 on handy form, pgs. 2-3

Switch to
PLATECOIL for
(REPLACES PIPE COIL)
TROUBLE-FREE Tank Heating and Cooling

Platecoils have many times the useful life of pipe coils thus preventing many production delays. When repairs are necessary, plates are changed from outside the tank in a matter of minutes without dumping tank solution. You can save STEEL, MAN-HOURS and MONEY by using Platecoils and you will enjoy TROUBLE-FREE heating and cooling.

NEW Technical Manual No. P53 simplifies the solution of heat transfer problems. Send for your copy today.

PLATECOIL
Division
BOLD HOLD MFG. CO.
LANSING 4, MICHIGAN

When inquiring check FP 3970 on handy form, pgs. 2

For Safety
in DUMPING or CLEANING
LEE HYDRAULIC OPERATING CYLINDERS

Operated Directly From Your Present Water System
No New Lines Are Required!

All Lee Tilting Kettles and Agitators are available with Hydraulic Operating Cylinders to eliminate the dangers—such as scalding of the operator, loss of product or damaged equipment—caused by the ever-changing center of gravity when tilting. The smooth action of this cylinder permits perfect control and balance for safe pouring or cleaning of Lee corrosion-resistant kettles.

Our descriptive bulletins on these units will be of interest to you.

LEE METAL PRODUCTS CO., INC.
414 PINE STREET • PHILIPSBURG, PA.

ALL LEE KETTLES ARE MADE TO A.S.M.E. CODE

When inquiring check FP 3971 on handy form, pgs. 2-3

THE COMPLETELY NEW LEWIS-SHEPARD JACKSTACKER® TRUCK

Most compact truck of its kind, 26½" long. Right angle stacks in 5' 6" aisles. New, compound wound, traction motor packs twice the power in 48% less space . . . Multiplies your manpower and space in receiving, production, storage, and shipping.

The Quality Truck in the Walkie Field—89 engineering advancements. Four types. Capacity to 6,000 pounds.

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Since 1915

"The MASTER" Line

LEWIS-SHEPARD PRODUCTS, Inc.
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LEWIS-SHEPARD Products, Inc.
Dept. L-37, Watertown 72, Mass.
I want to hear more about the new JACKSTACKER
Name_____
Company_____
Street_____
City_____ State_____

When inquiring check FP 3972 on handy form, pgs. 2-3

NEW LITERATURE

control; 4) design and construction of control charts and their relation to frequency distributions. It describes, step-by-step, the installation of a statistical quality control program in a factory, and fully discusses the administrative and operating problems of an established program.

Separate chapters in this 292-page book are devoted to quality rating and to evaluating the reliability of test results.

To obtain "Industrial Process Control by Statistical Methods," remit $6 direct to McGraw-Hill Book Co., 327 W. 41st St., New York 18, N. Y.

Explains open channel flow meter applications in industry

Manufacturer's bulletin describes new series line of open channel flow meters. Applications are also given of the instruments to the measurement of water flow, sewage, industrial plant effluent, irrigation water, and other liquids through weirs and flumes of all types. Bul F1C06 is issued by the Bristol Company, Dept. FP, Waterbury 20, Conn. When inquiring specify FP 3973 on handy form, pages 2 and 3.

Analyzes water treatment in all fields

"Water Treatment for Industrial and Other Uses" is written by a man who has had 32 years of experience in the field, Eskel Nordell. The 525-page tome covers all fields —from brewing to steel making—and discusses the latest techniques. Subject matter deals with water supply impurities such as chemical compounds, suspended solids, color, taste, etc., and the methods of treatment to fit the waters for a variety of applications. Water requirements in various industries are discussed thoroughly, and problems relating to chemical reactions and analysis, boiler feeds, and cooling waters are given intense scrutiny.

To obtain copy, remit $10.00 direct to Reinhold Publishing Corp., Dept. FP, 330 W. 42nd St., New York 18, N. Y. Or, when inquiring specify FP 3974 on handy form, pages 2 and 3.

Drawings aid in describing line of oil burners

Eight-page two-color catalog describes complete line of manufacturer's oil burners and contains illustrations of various sizes and capacities of the burners, including those with maximum capacities up to 60 gal.

Cat AD-102, "Hev-E-Oil Burners," is issued by the Cleaver-Brooks Co., Dept. FP, 326 E. Keefe Ave., Milwaukee 12, Wis. When inquiring specify FP 3975 on handy form, pages 2 and 3.

Maintaining sanitation, high production on fruit lines

In flow sheet form, folder illustrates sequence of operations in processing canned fruit sections and sauces. Flow sheet indicates nine different stations where woven wire conveyor belts offer advantages of faster production and adherence to sanitary requirements. Each belt application is described in detail. "Nine Ways to Speed Production and Maintain Sanitary Requirements in Fruit Processing Plants" was prepared by The Cambridge Wire Cloth Co., Dept. FP, Cambridge, Md. When inquiring specify FP 3976 on handy form, pages 2 and 3.

Look! It's Really Portable—
RIDGID
"400" POWER DRIVE
On Wheels!

Wheel legs and front handles available to convert your present "400" to wheel model; or legs and tray to make bench model into stand.

Power for hand threaders, cutters, reamers now easily rolled where you need it!

★ *One man* can easily wheel-barrow this popular RIDGID power unit close to the work—think of the time and muscle saving!

★ And it stands still and delivers plenty of power—universal motor, forward, reverse, ⅛" to 2"—to 12" with geared tools.

★ RIDGID design 3-jaw chuck, 6 adjusting pinions, one always handy; self-centering workholder in rear.

★ Sealed-in lubrication—no oil to spill.

★ See it, compare it—buy the unequalled "400" at your Supply House!

THE RIDGE TOOL COMPANY • ELYRIA, OHIO

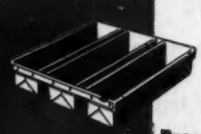
RIDGID
Work-Saver Pipe Tools

When inquiring check FP 3977 on handy form, pgs. 2-3

How to make your equipment last longer

Kettle

Blancher



Bread Pans

Retort

ONE important step in any program designed to preserve the life of costly equipment is to use specialized Oakite cleaning materials and methods—job-tested for safety—on even the most sensitive metals.

Use safe Oakite materials day in and day out for quick removal of foods soils and stains, lime scale, rust, milkstone—without abraiding or etching sensitive metal surfaces. Use them for cleaning baking tins without damaging the burned-in finish. Degrease and derust meat trolleys, 500 at a time, without harmful tumbling. Descale heat exchangers chemically and eliminate dangerous rodding. You'll do these and hundreds of other important cleaning jobs . . . over and over again . . . safely. You'll get greater production, more mileage out of your equipment.

There's a carefully compounded Oakite material and method for every cleaning job. Your local Oakite Technical Service Representative will gladly show you how they work. Call him today! Or write for booklet, "Cleaning in the Food Industry". FREE!

AKITE PRODUCTS, INC., 27A Rector St., NEW YORK 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING

OAKITE

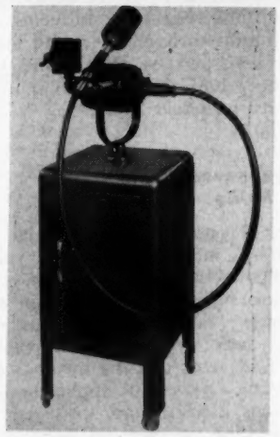
MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. & Canada

When inquiring check FP 3978 on handy form, pgs. 2-3

Sanitation & MAINTENANCE

Brushes are interchanged by a simple snap-on method that locks them securely in place. For special cleaning problems, brushes are available in different shapes and sizes



Caster mounted cabinet model has storage space for brushes and cleaning materials

No "elbow-grease" needed when power-driven hand brush is used on clean-up jobs

Brush attached to flexible shaft gives continuous scrubbing action, cleans remote surfaces

PERFORMANCE in continuous all-around service, in large commercial and institutional kitchens, indicates equally effective applications of a powered clean-up machine in food processing plants. Stubborn cleaning jobs yield quickly to brushing when soiled surfaces are continuously subjected to rapidly rotating bristles. Brushes, made of either wire or bristles, are whirled rapidly by means of flexible shaft to which they are attached.

Worker guides brush by holding it with easy-grip handle. There is no cramping of arms and hands, and places difficult to reach with ordinary hand brushes are made accessible.

Rubber covered flexible shaft 6 ft long is standard equipment and fully adequate for the majority of applications. Greater lengths up to 30 ft are available when needed.

Brushes may be operated at two speeds 1725 and 1140 rpm. Control is by vapor and moisture proof switch. Motors are ball bearing, permanently lubricated and sealed.

On the cabinet model shown in one of the photos, the motor is swivel mounted for flexibility in operation. Space for storage of accessory brushes and cleaning materials is provided for in the cabinet which is mounted on casters for mobility.

Portable vertical model can be hung from hook

When complete portability is desired, the motor is swivel mounted on a tripod or hung vertically from a hook or over-head track.

(Strand Clean-Up Machine is manufactured by the N. A. Strand Div., Dept. FP, Balmar Corp., Woodberry, Baltimore 11, Md. . . . or for more information check FP 3979 on handy form, pages 2 and 3.)

mproved silicone base now
dded to water repellent
o protect masonry . . .

versatile, transparent, applied by spray or brush

Uses: As a protective barrier for exterior surfaces of above-grade masonry.

Features: Easy to apply, either by spraying or brushing, even at freezing temperatures.

Description: Other advantages of silicone-base water repellent are: 1) quick to develop repellency after application; 2) performs well on most types of masonry; 3) highly effective against efflorescence; 4) transparent, causing no change in masonry appearance; 5) deep penetration to insure durability; 6) non-sealing of masonry pores, allowing masonry to "breathe"; 7) paintable — oil-base paints adhere and do not impair the water repellency of the underlying mortar. Comes in 1 and 5-gal containers, and in 55-gal drums.

(Ranetite No. 11 silicone-base water repellent was developed by the Ranetite Manufacturing Co., Inc., Dept. FP, 1917 S. Broadway, St. Louis 4, Mo. . . . or for more information check FP 3980 on handy form, pages 2 & 3.)

Concrete preserver produces film
and non porous . . .
hat is alkali resistant

on boiler doors subjected to high temps, coating did not discolor, crack, chip or peel

Uses: On interior or exterior porous masonry surfaces, metals and porous hard building materials (asbestos shingles and siding).

Features: Coating successfully repels water, ranging from the equivalent of intermittent mist, spray or rain to constant immersion.

Description: Oncrete is a resinous coating material that is practically free of oils and driers — hence its high alkali resistance. In addition, it resists acids with the exception of chromic, sulfuric up to 50% dilution, and nitric up to 10%. Oncrete on metal surfaces is stated to resist temperatures up to 500°F.

It has been placed on boiler doors subjected to high temperatures, and over a year later, there has been no discoloration, cracking, chipping or peeling. On floors not previously painted, coverage ranges from 350 to 500 sq ft per gallon; on floors that have been painted, Oncrete covers from 500 to 700 sq ft.

(Oncrete is a product of Lowebco Inc., Dept. FP, 1525 E. 53rd St., Chicago 15, Ill. . . . or for more information check FP 3981 on handy form, pages 2 and 3.)

Explains how roof coating protects
urfaces against sun

How manufacturer's asphalt and asbestos roof coating protects surfaces against sun and moisture is explained in 4-page, illustrated bulletin.

Printed in two colors and supplemented with line sketches, the bulletin tells how the coating penetrates and seals roofing surfaces and prevents the composition roofing from drying out, cracking, and leaking. Also described in the bulletin is manufacturer's plastic roof cement for repairing cracks, blisters, and holes, and the saturant, used as primer coat for very dry surfaces.

Bul 1-5201 is issued by Paramount Industrial Products Co., Dept. FP, University Center Station, Cleveland 6, Ohio. When inquiring specify FP 3982 on handy form, pages 2 and 3.

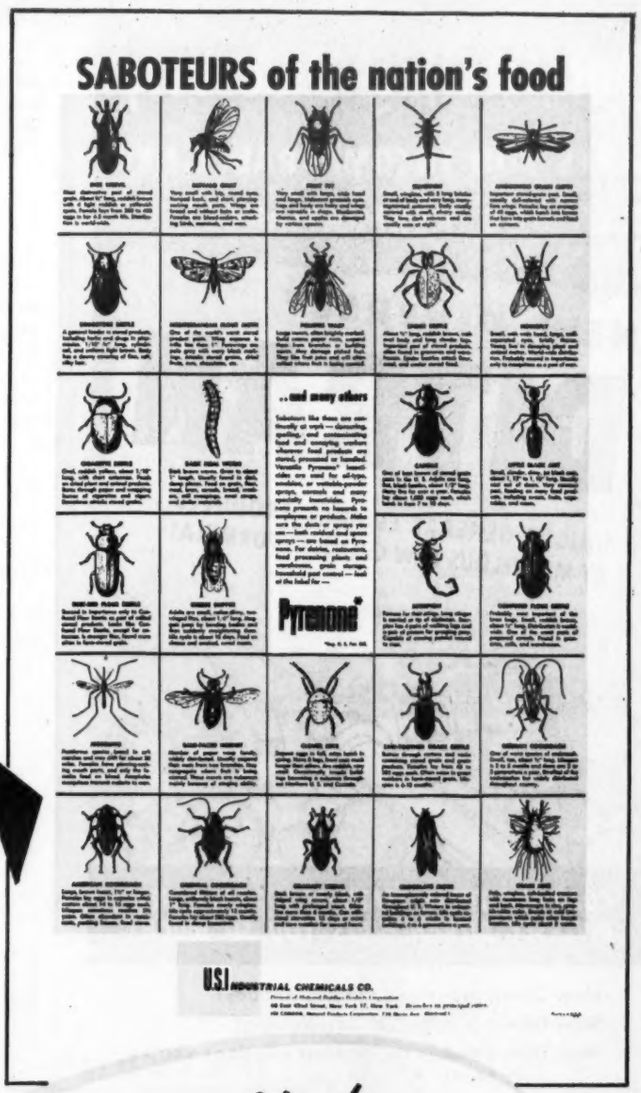
See the bugs you can kill with Pyrenone*

*Reg. U. S. Pat. Off.

These and many more pests that destroy food and annoy workers can be controlled by a program of sanitation and effective spraying with Pyrenone based insecticides. There are all kinds of sprays made with Pyrenone — aerosols, oil-base sprays, emulsifiable sprays and insecticide dusts.

Know the enemy — learn how to identify the pests that cause trouble, then institute a planned program to fight them. You'll be pleased to find that Pyrenone type insecticides give effective results — economically — without hazards to employees or animals or products in processing or storage.

Make sure Pyrenone is on the label of the insecticides you use — for effectiveness, economy and freedom from hazards.



Free Wall Chart available at your request

Write on your business letterhead for your free copy of this attractive wall chart which illustrates and describes the 28 leading pests you can control with Pyrenone.

U.S.I. INDUSTRIAL CHEMICALS CO.

Division of National Distillers Products Corporation
120 Broadway, New York 5, N. Y. *Branches in principal cities.*
In Canada: Natural Products Corporation, Montreal and Toronto.

When inquiring check FP 3983 on handy form, pgs. 2-3

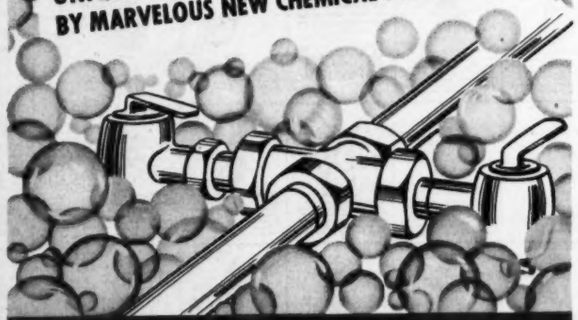
Outstanding Discovery

GIVES YOU INCOMPARABLE NEW CLEANING PERFORMANCE!

NEW DIVERSEY

DITRAN

UNIQUE GENERAL CLEANER PRODUCED BY MARVELOUS NEW CHEMICAL FORMULA!



COMPARE THESE FEATURES . . . ONLY NEW DIVERSEY DITRAN GIVES YOU SO MUCH!

New Ditran gives you billows of Suds!

New Ditran is definitely non-dusting!

New Ditran makes the clearest solutions you've ever seen!

New Ditran cuts grease like magic!

New Ditran positively leaves no film!

New Ditran dissolves completely, almost instantly!

New Ditran rinses and drains freely!

COMPARE DITRAN WITH ANY OTHER GENERAL CLEANER . . . compare and we promise you'll discover a new standard of cleaning performance . . . superior cleaning that means new speed, ease and economy for you! Call your Diversey D-Man for a free demonstration! Write for literature that fully describes new Diversey Ditran!

NEW 1952 D-LUXE IS HERE, TOO!

Now more suds . . . improved water softening . . . better cleaning . . . new low price! Write for more information today!

THE DIVERSEY CORPORATION

1820 Roscoe Street, Chicago 13, Illinois

In Canada: The Diversey Corporation (Canada) Ltd., Lakeshore Road, Port Credit, Ontario

When inquiring check FP 3984 on handy form, pgs. 2-3

Employ vinyl plastic-lined sewer to resist corrosive effects of industrial sewage . . .

being installed in Orange County, California, the reinforced sewer is nearly seven miles long

Recent installation of plastic-lined pipe for the Orange County outfall sewer in California is intended to eliminate the problem of crumbling and wearing of concrete sewage pipes. One of the main factors contributing to the disintegration of the concrete is the generation of hydrogen sulphide gas by bacterial action on both the sewage solids and sulphates in the water supply. It is upon oxidation that the gas exerts its corrosive action.

Chosen as the principal ingredient of the plastic sheeting, T-Lock Amer-Plate, was Geon vinyl. It is characterized by toughness; resistance to attack by chemicals, oil, and greases; and low water absorption. Inasmuch as the gas area above the water level is the portion requiring full protection, the pipe is lined only three-quarters of the way around. Consisting of 39, 48 and 78 inch pipe, the 35,000 lineal feet (@ 7 miles) of reinforced concrete is lined with approximately 400,000 square feet of the plastic sheets.

The plastic sheets are approximately 4 x 8 feet and not less than 0.060 inches thick. Because of the tees, or ridges, on the back of the sheets, they can be imbedded and locked into the concrete to form an integral unit.

Being thermoplastic, the sheets are then fused together by a hot air torch to form a strong union between joints.

In addition to pipe, the plastic lining is applicable to manholes, underground gaging chambers, distribution chambers, etc. The sheet may also be used as a lining for concrete tanks which are subject to corrosive acids and alkalis.

(Geon vinyl is manufactured by B. F. Goodrich Chemical Co., Dept. FP, 324 Rose Bldg., Cleveland 15, Ohio. T-Lock Amer-Plate is a development of Amercoat Corp., Dept. FP, South Gate, Calif. For more information check FP 3985 on handy form, pages 2 and 3.)

Action of hydrocarbon fumigants resisted by pumps, packings of grain bin applicator . . .

automatic system operates intermittently, delivers measured amounts, avoids hazards of hand pouring

Uses: For efficient, precise, intermittent delivery of chlorinated hydro-carbon fumigants to grain bins in large storage and terminal facilities. While each installation has to be separately calibrated to determine the "on-off" cycle time to get the proper ratio of fumigant to grain, two gallons of fumigant to 1000 bu of grain is recommended.

Features: Pump is especially designed for handling highly corrosive fluids at elevated temperatures, a service which ordinary pumps cannot perform without damage making them unfit for use. Pump is all bronze with monel shafting and incorporates a mechanical teflon seal.

The shaft is ball bearing supported at the drive end. Graphitar bushing supports opposite end. Equipment has been tested, showing its capacity for handling highly corrosive fluids at elevated pressures.

Description: Each installation is different and is therefore an individual project. On arrival for assembly,

Slash Repair and Maintenance Cost with the CIRCO HEAVY DUTY STEAM CLEANER

For Cleaning: Equipment, Machinery, Floors, Walls, Building Interiors and Exteriors, Parts, Tools, Windows, Skylights, Freight Cars, Lavatories, Motor Cleaning and Stripping

The answer to your tough plant housekeeping, production and part cleaning jobs is the CIRCO Steam Cleaner. DIRT, grease, grime—NOTHING—can resist the powerful blast of wet or dry steam. Into the steam is injected a cleaning compound which aids in the rapid removal of grease, dirt, paint, etc.

Cleans faster than other methods. Reduces fire hazards. Cuts repair and maintenance time. Quiet operation. The CIRCO Steam Cleaner costs little to operate—Fully automatic. No special skill required. Portable and stationary models.

Manufactured by

WRITE FOR Bulletin 521

TOPPER EQUIPMENT COMPANY

24-36 MAIN STREET • MATAWAN, NEW JERSEY

Offices in principal cities

PER-SOLV (Perchlorethylene) • CIRCO-SOLV (Trichlorethylene)

"CIRCO" VAPOR DEGREASERS • METAL PARTS WASHERS • DRYERS

SOLVENT RECOVERY STILLS • STEAM CLEANERS

When inquiring check FP 3986 on handy form, pgs. 2

Wire Cloth — Filter Cloth FABRICATED UNITS

Stainless Steel Steam Jacketed Kettle

Screen Deck for Food Process Machines

Complete Filter Unit

Complete plant facilities for fabricating miscellaneous units, filter elements, strainers, trays, and others.

Write for Catalog No. 50

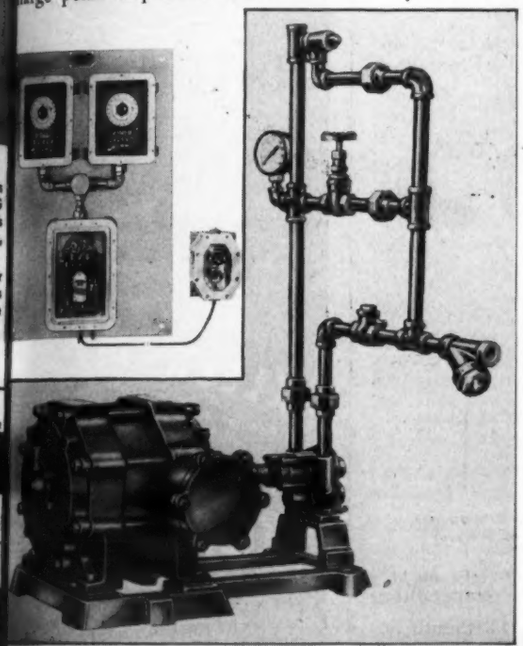
For unusual Process Equipment problems, MULTI-METAL offers a helpful design service, modern facilities and years of experience building large and small custom sheet metal structures.

Multi-Metal WIRE CLOTH COMPANY, INC. 1340 Garrison Ave., N. Y. 59, N. Y. Telephone: Kilpatrick 2-2500

When inquiring check FP 3987 on handy form, pgs.

fumigator will be in four main parts 1) pump and motor 2) piping 3) control panel and 4) stop-start pushbutton stations.

Two methods of piping into the bins are available. Main piping consists of a vertical riser and a horizontal feeder running the entire length of the bins. Individual pipes may be run off the horizontal feeder and fed into each bin as a permanent installation. Optional method includes installing an overhead system and having a discharge point suspended over each bin. By use of a



Pump, motor, piping, control panel and pushbutton station assembly of grain fumigating system

snap-on connection or pipe union, the downspout can be moved from bin to bin. In both installations shut off valves are required in the main horizontal line and the main line and in the individual lines to direct flow of fumigant.

Control unit includes a panel, on which is mounted the motor starter and two control timers. A separate pushbutton station is provided for controlling the motor starter. This may be mounted at any convenient location. All conduit and fittings are dust tight and explosion proof and each unit is sealed within itself at the time of installation. Each switch and timer is encased in a dust tight explosion proof cabinet to meet NEMA IX standards for hazardous locations (grain dust).

Motor — 2 hp — 110 rpm, 3 phase 60 cycle. 220/440 volt explosion proof unit is approved for use in Class II, Group G, hazardous locations (grain dust).

Automatic control is by two microflex reset timers. These are synchronous motor driven devices which trip their contacts open or closed after an adjustable interval. "On-cycle" timer has a range of 0.3 seconds to 120 seconds with an accuracy of plus or minus 0.1 second. "Off-cycle" timer has a range of 18 seconds to 20 minutes with an accuracy of minus or plus 6 seconds.

Grain fumigator is built by Sherwood Brass Works, Dept. FP, 6331 East Jefferson Ave., Detroit 7, Mich. . . . (For more information check FP 3988 on handy form, pages 2 and 3.)

UNION SPECIAL'S Style 60000 D bag closing machine, producing the exclusive Dubl-Tape closure, is designed to speed packaging . . . cut costs . . . and improve appearance.

- **FAST**— Speed to match output of standard filling and weighing equipment.
- **NEAT**— Produces an eye-pleasing, sales-stimulating package with high merchandising value.
- **ECONOMICAL**— Operating cost per bag is at a minimum . . . uses inexpensive cotton thread and paper tape.
- **VERSATILE**— Adjustable for a wide range of bag sizes, short or long runs.

Write for BULLETIN No. 100 to get the complete facts on this machine . . . and how it can do a *better* closing job for you.

Union Special MACHINE COMPANY
432 N. Franklin Street • Chicago 10, Illinois

When inquiring check FP 3989 on handy form, pgs. 2-3

CRYSTAL
The Time-Tested & Proven
SILICONE MASONRY
WATER REPELLENT
KEEPS WALLS DRY

Play safe! Crystal is the original invisible silicone above grade masonry water repellent. Easy to spray on with low cost equipment. Keeps walls dry yet allows 'em to breathe. Minimizes efflorescence and masonry stains. Prevents water passage through hairline cracks. Protected by application patent No. 2,574,168.

Order direct or write for name of nearest distributor or applicator. Literature available.

WURDACK CHEMICAL CO.
4991 FYLER AVENUE
ST. LOUIS 9, MO.

When inquiring check FP 3990 on handy form, pgs. 2-3

Experience Saves Time and Money in

ANALYSIS

OF YOUR SANITATION PROBLEM

An investment in a wise, systematic diagnosis of the sanitary conditions in your plant operations and facilities will eliminate losses due to trial-and-error methods. Greater productive efficiency and effective quality control will result from correct analysis of your problem.

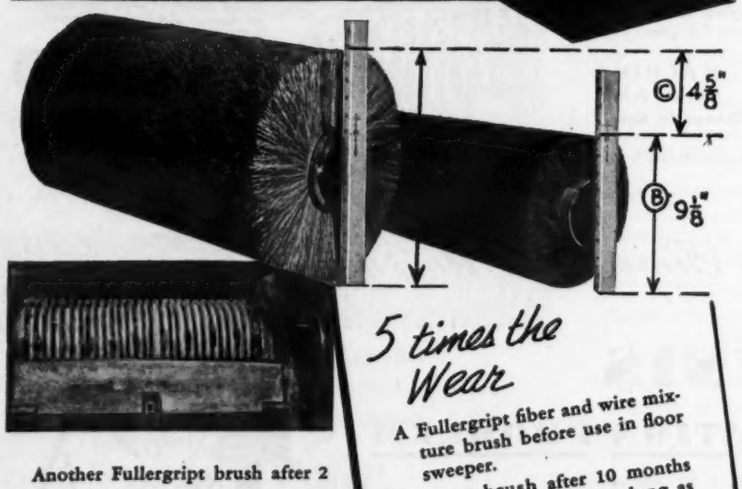
Orkin Institute has a competent staff of experts, which includes sanitation specialists in your field. We are alert to newest materials and methods, changing industry standards and regulatory standards. We are prepared to offer you sound analysis, thorough inspection, constructive development of program, as well as employee training.

Write us to learn how our services will benefit you.

ORKIN *Advancing Sanitation Across the Nation*

INSTITUTE OF INDUSTRIAL SANITATION
713 West Peachtree Street Atlanta, Georgia

When inquiring check FP 3991 on handy form, pgs. 2-3



Another Fullergript brush after 2 years, 9 months of service. This special, short-trimmed, crimped-wire brush was used to remove a thin layer of wood from a grease-soaked floor.

5 times the Wear

A Fullergript fiber and wire mixture brush before use in floor sweeper.

B Same brush after 10 months service — 5 times as long as the ordinary brush lasts.

C Note that although brush has worn down 4⅝", there is no evidence of material shedding, loose backing or warping.

Users of power-driven floor sweepers consistently emphasize the longer brush life, the improved sweeping efficiency and the saving of man-hours with Fullergript brushes! Write us for information.

INDUSTRIAL DIVISION
FULLER BRUSH
FULLERGRIPT
At home... in business, too

THE FULLER BRUSH CO. • INDUSTRIAL DIVISION • 3641 MAIN ST. HARTFORD 2, CONN.

When inquiring check FP 3992 on handy form, pgs. 2-3

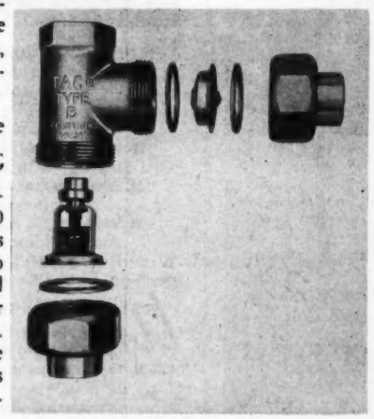
Mixes cold and hot water in right proportions for pre-set temp . . .

one-piece, easily replaced thermostatic element won't fatigue or corrode with normal use

Uses: Mixing hot water (or steam) and cold water to obtain (and hold) pre-determined mixture temperature.

Features: One-piece, hermetically sealed thermostatic element is quickly and easily replaced. It will not fatigue, leak, or corrode under normal service.

Description: Tempering valves are tested for 125 psi working pressure, and are not recommended for more than 10 psi steam pressure. They are available in brass, bronze, and stainless steel.



Exploded view of Type B tempering valve to deliver 140°F water

Three types are available. Type A. for ½ and ¾" lines, is readily adjustable from 120 to 150°F, and is fitted with two malleable and bronze unions for easy installation. Type B, for the same size lines, is factory-set to deliver water at 135 145°F, and has same unions as Type A. Type T has threaded connections for 1, 1½, 2" lines; adjustable for 140-200° F water temperatures.

(Taco Heaters, Incorporated, Dept. FP, 137 South St., Providence 3, R. I. . . . or for more information check FP 3993 on handy form, pages 2 and 3.)

Outlines features and use of nylon bearings

Two-color bulletin outlines principles and application of nylon bearings for rotation and reciprocation. Sectional illustration presents operating features of bearing to be utilized at 250°F recommended temperature limit.

Bearings are sleeve or flange type with tensile strength of 10,900 psi. Advantages of nylon bearings relate to dry operation or limited lubrication requirements. Chemically inert properties of nylon permit contact with ordinary industrial chemicals.

Four-page bulletin "Nylined Bearings" and data sheet are issued by Thomson Industries, Inc., Dept. FP, Engineering Department, Manhasset, N. Y. When inquiring specify FP 3994 on handy form, pages 2 and 3.

Fire-smothering fog produced by low-pressure nozzle for garden hose . . .

recommended for small fires where straight stream would scatter the flames

Uses: Nozzle can be used on ¾" garden hose lines for extinguishing small fires of the type involving paints, oils, gasoline, grease, etc. Suggested for use in fixed installations and in areas where there is danger of heavy

CLEAN UP WITH KLENZADE
DETERGENTS AND SANITATION CHEMICALS

KLEER-MOR
Popular wetting agent detergent for all hand cleaning jobs in the food industries. Rapid detergent and emulsifying action.

KLENZADE X-4
Concentrated powerful liquid-type sodium hypochlorite disinfectant and germicide. Ideal for food plants. Leaves no film.

STER-KLEEN
Organic acid detergent compatible with all quaternaries. Removes lime film and alkaline deposits from equipment.

STER-BAC
An outstandingly powerful quaternary for sanitizing food plant equipment and preventing mold growth.

Offices in Principal Cities
A Klenzade field technician will gladly call and help you plan a complete plant and equipment cleaning program.

KLENZADE PRODUCTS, Inc.
BELOIT, WISCONSIN

See Us At Booth No. B3, Institute of Food Technologists Exhibition, June 8-11, Grand Rapids.

When inquiring check FP 3995 on handy form, pgs. 2-3

FREE!

HOW TO SAVE OLD ROOFS

HOW 90% of Leaky Roofs can be Saved!

HOW to Cut Labor Costs in Half!

HOW "Dead" Roofs get Extra Years of Life!

This simple system of roof maintenance and repair can save you today's high costs of re-roofing and major repair by outside contractors. Shows how every type of industrial and commercial roof can be maintained at low cost and give many years of extra service. This FREE manual, by word and picture, gives simple step by step methods of inspection and repair ... tells what to look for and where to look to stop major roof defects *before they start* ... how to do your own repairs quickly, effectively, economically. Packed with money-saving practical information. A request on your business letterhead brings your FREE copy at once—write today!

Since 1883
HEAVY-DUTY MAINTENANCE PAINTS
TROPICAL
SUBSIDIARY OF PARKER RUST PROOF COMPANY

Bonderite

THE TROPICAL PAINT & OIL CO.
1130-1280 W. 70th St.
Cleveland 2, Ohio

When inquiring check FP 3996 on handy form, pgs. 2-3

Middle photo shows Triple Jet fog blanket putting out gasoline fire (left) in 20 seconds. Right photo shows how ordinary stream of water spreads the blaze

water damage — since the nozzle delivers only 2½ gal of water at 50 lb pressure.

Features: Nozzle delivers a very fine pattern of fog, even on low-pressure water systems. There is no danger of straight water stream, creating a splash in fires.

Description: Called the Triple Jet Safety Nozzle. Machined from solid brass.

(Manufactured by Fogg-It Sales Co., Dept. FP, PO Box 1985, Modesto, Calif. . . . or for more information check FP 3997 on handy form, pages 2 and 3.)

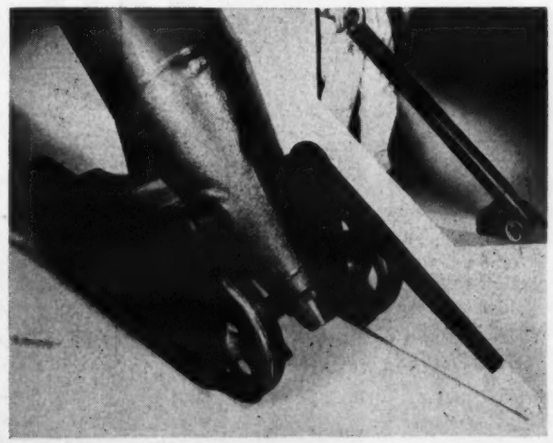
Marks safety and parking lines within 1/8" of partitions, aisleways, etc. . . .

capacity is sufficient for approximately 1200' of 4" line at operator's walking speed

Uses: Marking lines — safety, parking, etc. — on floors or pavement with paint, lacquer or whitewash.

Features: Lines can be made within 1/8" of partitions, equipment, aisleways, etc.

Description: A more recent edition to manufacturer's line, Florline-X holds 1½ gal of paint, lacquer or white-



Close-up view of "business end" of marker plus inset showing entire unit in action

wash. This capacity is sufficient for approximately 1200' of 4" line. Unit weighs less than 20 lb and can make straight, curved or skip lines.

Construction is heavy gage metal with all-welded seams. Paint flow is adjustable by a pistol-grip trigger control and the rate of application is governed by the operator's walking speed.

(Manufactured by H. C. Sweet Co., Dept. FP, 12083 Woodbine Ave., Detroit 28, Mich. . . . or for more information check FP 3998 on handy form, pages 2 & 3.)

keep TEFLON* in mind . . .

Teflon, duPont's new wonder plastic fabricated by the United States Gasket Company, is proving a better material for many food manufacturing requirements. Keep its unique properties in mind for such services as:

- Pump impellers that won't gall and freeze on such difficult solutions as vinegar, molasses, fruit juices, syrups, extracts.
- No-lubricant bearings that can't contaminate the product.
- No-lubricant pump and valve packing that imposes minimum torque on shafts and spindles.
- Teflon covered header rolls on bakers' dough sheeters that reduce or eliminate flour dusting; squeeze out more air.
- Teflon candy molds that eliminate the dust, mess and explosion hazard of starch molds.
- Sanitary, Teflon-covered working surfaces, conveyors, guide rails, trays, etc.—easy to clean and keep clean, bacteria resistant, non-absorbent, slippery to the stickiest substance.
- Non-contaminating, durable gaskets, expansion joints and accessories for glass and stainless steel piping.

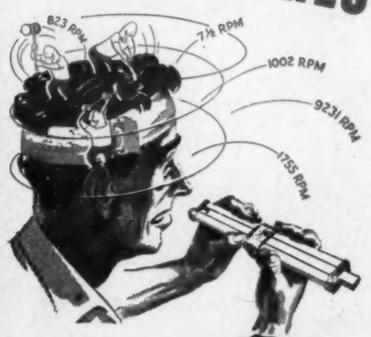
Teflon—fabricated by the United States Gasket Company is available in sheets, tape, engineered packings, cut and molded gaskets, covered rolls, to solve many food processing problems. Ask for catalog or tell us your requirements.

UNITED STATES GASKET COMPANY
FLUOROCARBON PRODUCTS DIVISION
FABRICATORS OF "TEFLON", "KEL-F" AND OTHER FLUOROCARBON PLASTICS
CAMDEN 1, NEW JERSEY

*duPont's trademark for its tetrafluoroethylene resin.

When inquiring check FP 3999 on handy form, pgs. 2-3

CURE RPM HEADACHES



MOTORS

Get any RPM by turning a dial

U.S. VARIDRIVE

MOTOR- 2 TO 10,000 RPM

WHEN designing a machine, avoid "rpm headaches" of fixed speed selection. Install a U. S. Varidrive Motor so that your machine can be operated at any and all speeds. *Eliminate guesswork.* Your machine speed can be instantly matched to each specific job or condition by turning a convenient control dial on the Varidrive. Increase performance by adopting the most modern of all drives—*Varidrive. ¼ to 50 h.p.*

U.S. ELECTRICAL MOTORS Inc.
Los Angeles 54, Calif. Box 2058
or Milford, Conn.

MAIL COUPON TODAY FOR BULLETIN

U. S. Electrical Motors, Inc.
200 E. Slauson Ave., Los Angeles 54, Calif.
or Milford, Conn. FP-5

Send Varidrive Bulletin

Name_____

Company_____

Address_____

City_____ Zone___ State_____

When inquiring check FP 4000 on handy form, pgs. 2-3

SANITATION & MAINTENANCE

Insulate odd surfaces easily with cement . . .

mineral wool composition good for temperatures to 1600°F; applied with trowel

Uses: Mineral wool insulating cement especially adaptable to large monolithic construction on furnace walls, stills, tanks, and boilers. Good for insulating odd or irregular shaped surfaces, grouped fittings, and process equipment.

Features: Easily applied with a trowel, and bonds well to cold or hot metal surfaces. Strength is high.

Description: MW-50 is recommended for insulating against temperatures ranging up to 1600°F.

(Five-pound sample bags of MW-50 are available from Philip Carey Mfg. Company, Dept. FP, Cincinnati 15, Ohio . . . or for more information check FP 4001 on handy form, pages 2 and 3.)

Report many advantages for hydrazine in removing O_2 from boiler water . . .

no corrosive or objectionable reaction products; every pound removes 1 pound oxygen, adds alkalinity

Hydrazine has long been known as a powerful reducing agent, particularly in alkali solutions. The affinity is so strong, in fact, that it is effective on oxygen in both the free and combined state. One of the most recent developments is the utilization of hydrazine as an "oxygen scavenger" in boiler water treatment. Although this application has been limited in this country, Europeans have used hydrazine with a great deal of success for the past 5-10 years. Advantages that hydrazine possess over most widely used sodium sulfite in this application are:

1) It reacts with oxygen according to the formula — $NH_2NH_2 + O_2 \rightarrow 2H_2O + N_2$. Reaction products — water and gaseous nitrogen — are not objectionable.

In contrast, sodium sulfite can decompose in over-heated boiler areas into sodium sulfate and sodium sulfide. The sulfide, in turn, hydrolyzes into highly corrosive hydrogen sulfide gas.

Hydrazine is stable in aqueous solutions and any decomposition possibly occurring under extreme conditions produces products which have neither objectionable nor corrosive properties.

2) One pound of hydrazine removes 1 pound of oxygen without the addition of any solids to the boiler system that must later be removed in one way or another. Again, in contrast, 8-10 pounds of sodium sulfite are used to remove 1 pound of oxygen, and for each pound of oxygen that is removed, about 9-12 pounds of sodium sulfate are formed which must be removed from the boiler system.

3) Hydrazine has a pH of 12-13, imparting a desirable alkalinity to the water which is also retained in the vapor state, providing an excess of hydrazine is used. This excess carries along in the vapor and condensate, giving added protection in case stray oxygen is picked up. Sodium sulfite, being non-volatile, proceeds no further than the boiler itself.

4) The 22% aqueous hydrazine solution being offered for water treatment is a clear, water-white liquid that handles easily and requires no extra precautions. It is fed directly into the system as received, or may be further diluted with water.

General practice is to add the hydrazine solution after

Better production for world's largest corn packer

● In this progressive Midwestern plant, fresh corn from the husking machine is carried on a Cyclone Chain Drive Spiral Woven Conveyor Belt through continuous, automatic washing, sorting, processing and inspecting operations. Packer reports results are: reduced labor costs—less manual labor—better product quality.

Cyclone Metal Conveyor Belts are adaptable to a great variety of food—and other manufacturing plant—operating conditions, whether large or small. Our engineers will advise you on which of the three belt types—Spiral Woven, Flat Wire and Flex-Grid—is right for your processing bottleneck. Send to Dept. K-52 for a free copy of Catalog #4.

U·S·S CYCLONE METAL CONVEYOR BELTS

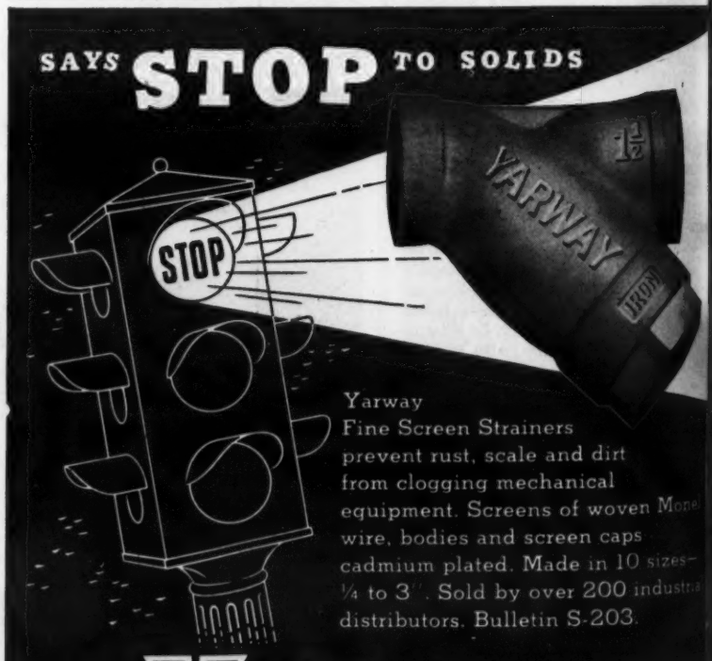
CYCLONE FENCE DEPT.
AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL COMPANY
WAUKEGAN, ILLINOIS

USS

UNITED STATES STEEL

When inquiring check FP 4002 on handy form, pgs. 2-3

SAYS **STOP** TO SOLIDS



Yarway Fine Screen Strainers prevent rust, scale and dirt from clogging mechanical equipment. Screens of woven Monel wire, bodies and screen caps cadmium plated. Made in 10 sizes— ¼ to 3". Sold by over 200 industrial distributors. Bulletin S-203.

YARWAY STRAINERS

YARNALL-WARING CO., 126 Mermaid Ave., Philadelphia 18, Pa.

When inquiring check FP 4003 on handy form, pgs. 2-3

Let the Cleaner Do the Work!

To obtain thorough cleaning with lower labor costs by eliminating manual scrubbing . . .

USE THE CLEANER WITH WETTING POWER PLUS DISPERSING ACTION

It's MAGNUS 1DX . . . the mild alkaline cleaner with super-wetting action. Loosens and disperses greasy, sticky food deposits in a way that manual cleaning cannot do. Dairies keep bacteria count at record low levels. Breweries clean piping on bottle filling machines without dismantling. Meat plants maintain spotless equipment. Food plants of all kinds find Magnus 1DX to be a fast, thoroughly dependable cleaner taking minutes instead of hours to do their routine and difficult cleaning jobs.

Get the complete 1DX story. For Dairies . . . it's in the Dairy Cleaning Handbook. For food plants generally, it's in the Food Plant Cleaning Handbook. Write for copies.

MAGNUS CHEMICAL CO., 173 South Ave., Garwood, N. J. In Canada—Magnus Chemicals, Ltd., Montreal. Service representatives in principal cities.

MAGNUS
CLEANERS • EQUIPMENT • METHODS

When inquiring check FP 4004 on handy form, pgs. 2-3

LIQUID PORCELAIN-LIKE
DAMP-TEX FOR
WET OR DRY SURFACES

GIVES YOUR WALLS AND EQUIPMENT A PORCELAIN-LIKE FINISH OVERNIGHT

Stainless Steel Finish
Now you can give your metal surfaces stainless steel protection for about 4¢ per sq. ft. Write for complete information.

Damp-Tex sticks to wet or dry wood, metal, concrete, plaster. Stops deterioration, rust, rot, bacterial and fungus growth*. Will not crack, peel, check, sag or fade. Comes in non-yellowing white and colors. One coat covers. Dries over-night into porcelain-like waterproof film. Will not taint foods.
*Pre-Treated Damp-Tex

SEND FOR DETAILS OF OUR NO-RISK TRIAL OFFER. Your first Damp-Tex is used entirely at our risk. Send for folder (K) for complete details.

DAMP-TEX
THE WET-SURFACE ENAMEL

Canadian Manufacturers: Standard Paint & Varnish Co., Windsor, Canada
Canadian Industrial Distributor: O. H. Wood & Co., Ltd., Toronto

When inquiring check FP 4005 on handy form, pgs. 2-3

the mechanical degasifier and just ahead of the boiler feed pump. Mechanical degasifying units will generally remove oxygen to about 0.05 milligrams per liter. The amount of residual oxygen after the deaerator is determined by test.

Based upon the capacity of the boiler and the amount of oxygen to be removed, the desired amount of hydrazine can be introduced with a proportioning pump. As indicated, an excess over theoretical should be used to insure circulation through the vapor and condensate system.

Hydrazine reacts best in alkali medium and the pH of the boiler water should be at least 8. Since the hydrazine added is not sufficient to obtain this pH, additional alkalizers such as ammonia will still be required.

Oxygen determinations are made at the usual locations and condensate samples may be tested so as to ascertain the presence of hydrazine.

Two methods for the analysis of hydrazine are recommended: using potassium permanganate, and using iodine. Details on these determinations are available.

(The 22% hydrazine aqueous solution, and also hydrazine sulfate AR, are products of Fairmount Chemical Co., Inc., Dept. FP, 136 Liberty Street, New York 6, N. Y. . . . or for more information check FP 4006 on handy form, pages 2 and 3.)

Teflon gaskets and packing offer high degree of resistivity and mechanical strength . . .

packing is furnished, lubricated or not, in endless rings and in continuous braided construction

Uses: For flanges, valves, pistons, pumps, electrical insulation, etc.

Features: Chemical inertness; high mechanical and impact strength; zero water absorption.

Description: Flexrock Teflon Gaskets are supplied in jacketed construction (choice of insert materials) or as

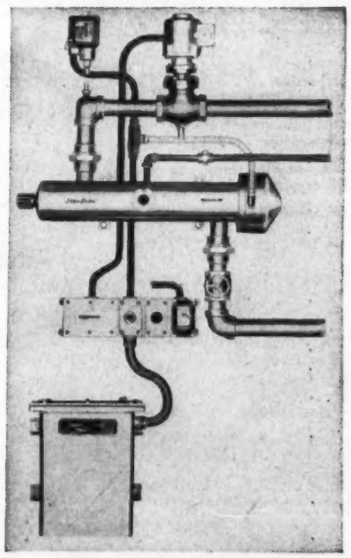
Variety of shapes and sizes offered in plastic

solid Teflon ring gasket and special shapes. Flexrock Teflon Packing is furnished, lubricated or unlubricated, in endless rings and in continuous braided construction (braided types available with blue asbestos core).

These materials are serviceable from –150° to 550°F. In addition, Teflon possesses a naturally non-adhesive, slippery surface.

(Manufactured by Packing Division, Flexrock Co., Dept. FP, 3609 Filbert St., Philadelphia 4, Pa. . . . or for more information check FP 4007 on handy form, pages 2 & 3.)

WHY RISK CONTAMINATED WATER?



HANOVIA STERITRON

Hanovia's Steritron furnishes an economical and efficient method of water sterilization. No chemical sterilizing agent need be added to the water; the chemical structure remains unchanged while all micro-organisms in the water are destroyed.

IMPORTANT FEATURES OF HANOVIA STERITRON

- Completely automatic.
- Stainless steel throughout.
- Separate control unit.
- Manual wiper device for internal cleaning.
- 100% moisture resistant oil-immersed transformer and controls.
- Designed for wall mounting as a single unit or in multiples.

Write for Steritron folder

HANOVIA CHEMICAL & MFG. CO.
DEPT. K-5, NEWARK 5, N. J.

When inquiring check FP 4008 on handy form, pgs. 2-3

AUTO-LITE

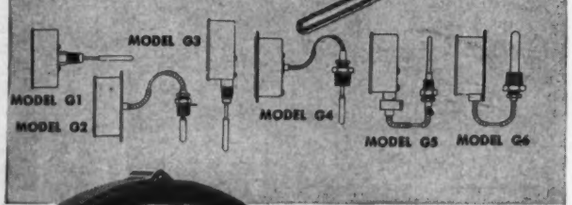
TEMPERATURE INDICATORS

For your specific needs!

- Low-cost protection . . . due to large, specialized production.
- Precision-built indicators provide accurate temperature readings.
- Wide selection of dial ranges to meet specific requirements.
- 6 stock types available as shown.

MODEL "G"

Select the type that is best for your purpose. 3½" dial; evenly calibrated scales. Priced from $18.



MODEL "F-1"

This Auto-Lite dial indicating thermometer has solid liquid filled movement and evenly calibrated 4" dial. Available with flexible capillary tubing for remote reading. Priced from $22. Adjustable, electrical alarm contacts at small additional cost.

Drawing at left shows 3 positions at which Auto-Lite F-2 Thermometers may be mounted by simple screw adjustment.

THE ELECTRIC AUTO-LITE COMPANY
INSTRUMENT AND GAUGE DIVISION
TOLEDO 1, OHIO
NEW YORK • CHICAGO • SARNIA, ONTARIO

THE ELECTRIC AUTO-LITE CO.,
Instrument and Gauge Division,
Toledo 1, Ohio

Please send your illustrated catalog, describing the various styles and types of Auto-Lite Indicating and Recording Thermometers.

NAME.....

COMPANY.....

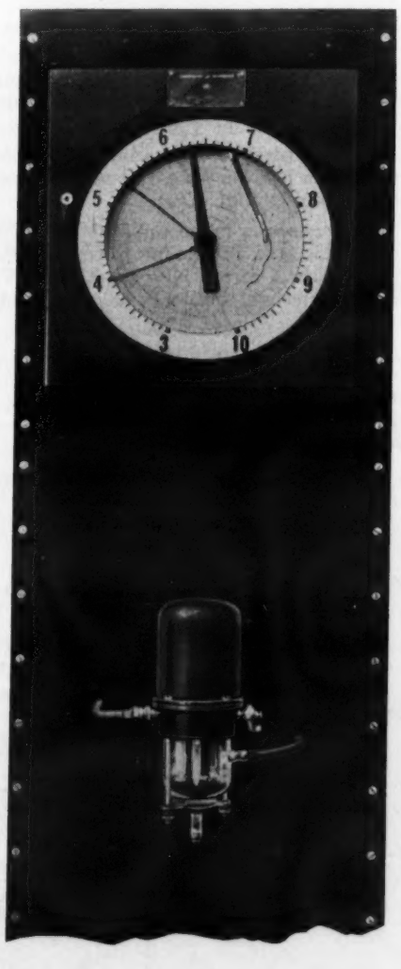
ADDRESS..... CY4

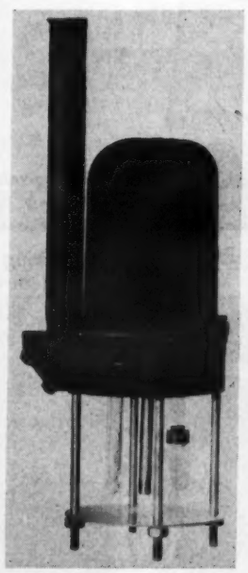
(Indicate purpose for which thermometers are required.)

When inquiring check FP 4009 on handy form, pgs. 2-3

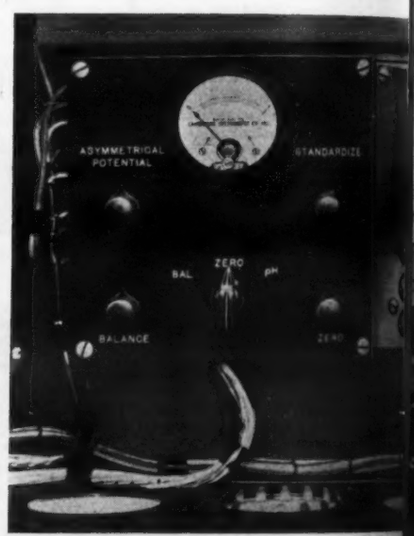
Records pH at One or More Stations Whether Solution Is Flowing Or Static

Resistance thermometer makes correction at cell; methods are also available for making measurement at moderate pressures





Immersion electrodes



Manual controls of the recorder

Panel mounted recorder with flow type electrode assembly below it on the panel

HERE is another instrument that offers continuous monitoring to replace spot checks in the lab. In using a glass electrode cell and an amplifier to raise the millivolt signal to an easily readable level, it is similar to the conventional lab instrument. The important differences between this recorder and the lab instrument are in design precautions leading to stability and automatic correction of errors. That the precautions have led to a practical instrument is shown by the fact that an accuracy of 0.1 pH is guaranteed.

Glass electrodes may be furnished for the usual 0 to 10 pH range. Very alkaline solutions require the use of a special electrode which resists etching above pH 10. Still a third glass electrode is employed where temperatures in excess of 140°F (60°C) are encountered. Compensation for temperature is fully automatic: a resistance thermometer is part of the electrode assembly.

Electrode assembly may be used in either of two ways. It may be immersed; it may be placed in a flowing line. Flow type assembly is similar to the immersion type, but it is also provided with the Pyrex flow chamber shown in photograph. When used, the flow assembly requires that that part of the stream to be tested be diverted through it. If pressures exceed atmospheric by more than a few pounds per square inch, they must be dropped with a reducing valve, or the calomel electrode must be pressurized to keep it from being poisoned as test solution leak into it.

Coming from the electrode assembly are two shielded cables. Polyethylene-insulated coaxial cable carries the millivolt signal from the electrodes. A similar cable carries the temperature reading into the recorder where

a correction is made. Despite the feebleness of signal, the electrode assemblies may be located several hundred feet from the recorder.

While both circular and strip chart recorders are standard, multi-point models use the strip chart entirely. Chart speed is two inches per hour for either chart — so that chart reloading is only a monthly routine. Standard chart ranges include 3 to 10, 6 to 13, and 2 to 12 for pH; an arbitrary 0 to 100 scale is used for oxidation-reduction potential measurements with a platinum or gold electrode.

Mercury switches installed in the recorder allow choosing any points in instrument's range as alarm points.

(Product of Cambridge Instrument Co., Inc., Dept. FP, Grand Central Terminal, New York 17, N. Y. . . . or for more information check FP 4010 on handy form, pages 2 and 3.)

Only temperature, not vibration recorded by tiny instrument . . .

affords complete check on truck's temperature level during day's run

The miniature recorder shown in photo is specially designed to maintain accurate temperature records in mobile units, such as refrigerated trucks or trains, as well as in stationary installations. It is used by Good Humor to determine best positioning of cooling pads charged with ammonia.

So that temperature and not truck vibration is recorded, the miniature instrument is made with a bellows instead of

a spiral or helix, and instead of the ordinary mechanical linkage, a stabilizing spring connects bellows to pen arm.

(TAG Miniature Recorder is manufactured by Tagliabue Instruments Division, Weston Electrical Instrument Corporation, Dept FP, 641 Frelinghuysen Avenue, Newark 5, N. J. . . . or for more information check FP 4011 on handy form, pages 2 and 3.)

Sight flow indicator fits pipe, lets operator watch contents

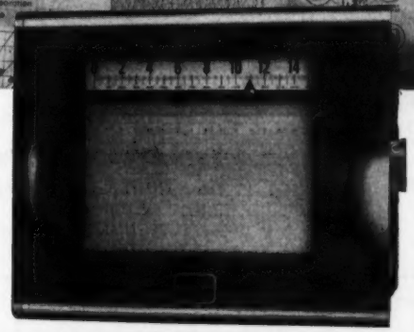
Illustrated, two-color sheet describes and specifies a fitting for viewing material flowing through piping. Heavy glass is held on either side of the fitting by retaining rings; no bolts are used. Sheet gives overall dimensions, pressure ratings, alloys available and further information. Section drawing and photograph show construction clearly.

"Trin-Vue" is issued by Trinity Equipment Corp., Dept. FP, 472 Westfield Ave., East, Roselle, N. J. When inquiring specify FP 4012 on handy form, pages 2 and 3.

and chose the

BRISTOL DYNAMASTER

Continuous-balancing electronic recorder



The instrument makers whose advertisements appear above know that their reputations depend upon the accuracy and reliability of their recorders. They select each component part with scrupulous care.

As the recording unit in their instruments, they all selected Bristol's Dynamaster. When you choose the Dynamaster for your own measuring needs you are assured of the same accurate, precise instrumentation demanded by these instrument makers.

THERE'S A DYNAMASTER FOR EVERY NEED

Available as a bridge or potentiometer, with strip or circular charts, Dynamasters can measure any variable that can be converted into changes in d-c voltage, d-c current, resistance, or capacitance.

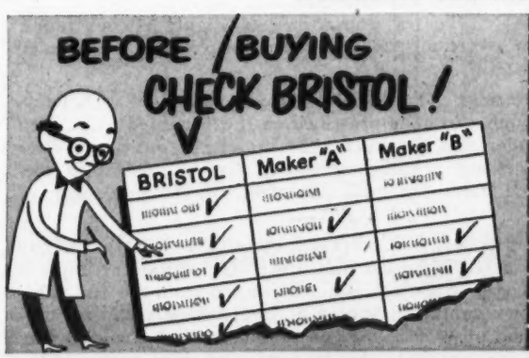
Dynamasters are providing accurate, trouble-free measurement and automatic control of such quantities as temperature, pressure, pH, speed, voltage, power, current, smoke density, strain, and resistance.

BRISTOL

FOR MORE INFORMATION *on the uses of this versatile recorder, use the coupon to get Catalog No. P1245.*

The dependable Guidepost of Industry

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS



THE BRISTOL COMPANY
143 Bristol Road
Waterbury 20, Conn.

Please send catalog giving details of Dynamaster performance to:

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

When inquiring check FP 4013 on handy form, pgs. 2-3

WHAT'S COOKIN'?

No matter what food your Company produces, from artichokes to zwieback, it must be cooked to the last degree of perfection.

When you apply scientific accuracy to the processing of food it must be done so that the flavour is not harmed but enhanced, and without deviation, from batch to batch, time without end.

That's why Burling Temperature Controls have won such wide acclaim and acceptance from food processors. If an oven is to be held at 375° F, and the Burling Temperature Control is set at 375° F, the heat in that oven doesn't vary ½ of one degree, plus or minus, from one week, to the next.

Send for new catalog G-17, and ask us how to maintain temperatures.

Burling Instrument Co.
2 Vose Ave., So. Orange, N.J.
Temperature Controls since 1935

When inquiring check FP 4014 on handy form, pgs. 2-3

ACCURATE

HEAT REGULATOR

Unsurpassed for reliability and power to operate large or small diaphragm valves for accurate temperature control of Water Heaters, Heat Exchangers, Jacket Water for Compressors, Diesel and Gas Engines, and many industrial processes.

IMPORTANT FEATURES

● ***Adjustable Sensitivity*** and over-heat protection. ● ***Calibrated Dial*** temperature adjustment. ● ***Ranges*** 50 to 250° F. and 150 to 350° F. ● ***Simple, Rugged Construction*** withstands vibration and insures many years of reliable service. Requires 15 lb. supply of compressed air or water for its operation. ● ***Small Size*** — regulator head is only 2⅞" x 3¾". Write for Bulletin 316. (n76)

THE POWERS REGULATOR CO., 3437 Oakton St., Skokie, Ill.

60 Years of Temperature and Humidity Control • Offices in Over 50 Cities

When inquiring check FP 4015 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

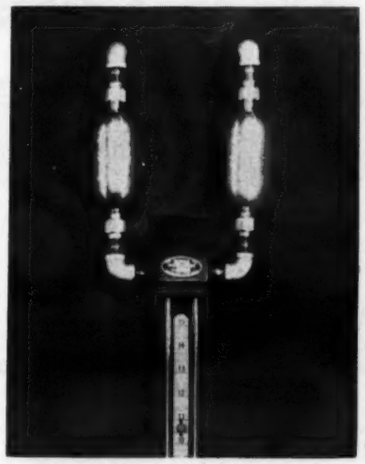
Steadies quivering manometers and prevents mercury from escaping . . .

damping chambers of steel are combined with porous media of specified permeability

Uses: For use on mercury manometers where excessive pulsations and surges cause mercury losses and make reading difficult.

Features: Traps mercury blown from manometer and brings gage back to equilibrium in ten seconds or less.

Description: Device consists of two stainless or molybdenum steel chambers together with porous stainless steel membranes. Damping chambers, as shown, are inserted in the leads from the differential pressure source being checked. Capacity of the chambers (110 cc for the moly and 125 for the stainless) is more than ample for the amount of mercury usually used in manometers. Porosity of the membranes is selected on the basis of pressure differential across the porous element.



Ordinarily the side of the chambers nearest the pressure source is equipped with a membrane which prevents passage of mercury to the line at pressures under 17 psi. Higher pressure membranes are also available. When the mercury has been driven into the damping chambers, the deficit in the U tube is evident, so that incorrect readings will not be made.

(This system, called Mercureceiver, is available through Chemiquip Company, Dept. FP, 6 E. 97th St., New York 29, N. Y. . . . . or for more information check FP 4016 on handy form, pages 2 and 3.)

Reveals consistency grade of viscous products . . .

instrument described in proposed FDA standards to measure consistency of cream-style corn

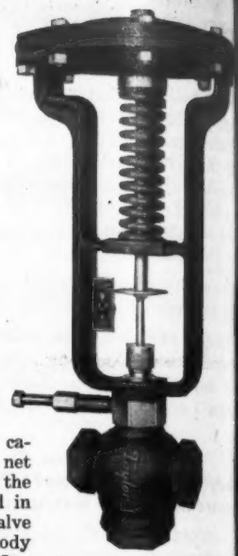
Uses: To test consistency of highly viscous foods, such as cream-style corn, apple sauce, pancake batters, and jellies.

Features: Easily and rapidly operated. Reliable enough that it is described in the proposed FDA corn standards as the instrument by which consistency after processing, is to be measured. Can be used as an adequate guide for quality control, during processing of other foods.

Description: Comprised essentially of a sample cup and a graduated flat measuring disc. Product sample is placed in cup which is quickly raised from the disc. This allows sample to spread or level off on the disc for a period of 30 sec. At end of time period, grade or consistency is indicated by the number of rings on the disc.

Reading lines 12 to 15 on disc indicate heavy con-

HI-FLOW* means HIGH CAPACITY

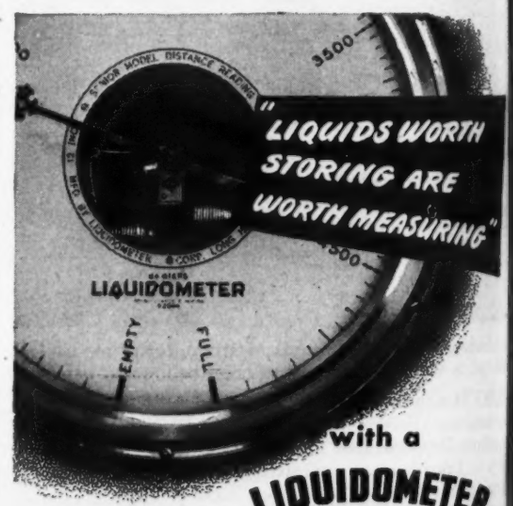


This Taylor HI-FLOW Valve is a single-seated diaphragm valve in the 150 pound class with *maximum* capacity. In fact, it gives you a net flowing area equal to 90% of the corresponding pipe size. And in some cases, the HI-FLOW Valve enables you to use a smaller body size than usual. Features: **Inherent tight shut-off; Easy maintenance; Long life; Cast iron or Motosteel* diaphragm motor.** Write for **Bulletin 98183,** or ask your Taylor Field Engineer! Taylor Instrument Companies, Rochester, N.Y., and Toronto, Canada. *Instruments for indicating, recording and controlling temperature, pressure, flow, liquid level, speed, density, load and humidity.*

*Trade-Mark

TAYLOR INSTRUMENTS MEAN ACCURACY FIRST

When inquiring check FP 4017 on handy form, pgs. 2-3



with a **LIQUIDOMETER Tank Gauge**

- **FOR GAUGING LIQUIDS OF ALL KINDS**
- **100% AUTOMATIC**
- **APPROVED BY UNDERWRITERS' LABORATORIES**

WRITE FOR COMPLETE DETAILS

THE LIQUIDOMETER CORP
3925 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

When inquiring check FP 4018 on handy form, pgs. 2-

What's "A New Solution"?

It's an article in FOOD PROCESSING describing a new way of solving a tough plant operating problem.

In each issue you will find specific "case histories" showing how these processing problems were solved.

Each article
- ... states the operating problem
- ... explains the process used
- ... gives details of how problem was solved
- ... shows results secured.

Take a look at "New Solutions" articles beginning on page 14 in this issue—they might suggest a "solution" for some of your tough processing problems.

Laboratory model of Adams Consistometer

sistency or grade A; 7 to 12, medium or grade B; and less than seven, light or grade C.

Two models available. Laboratory model is made of highly polished stainless steel contact parts and a spring operated cup lift with a retarding cylinder to allow cup to rise at a smooth regular speed. The Industrial model has polished aluminum contact parts.

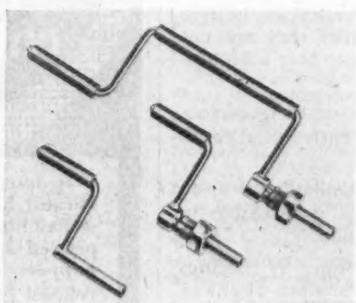
(Adams Consistometer is available from Canning Machinery Division, Food Machinery and Chemical Corp., Dept. FP, Hoopeston, Ill. . . or for more information check FP 4019 on handy form, pages 2 and 3.)

Suggests a crank for winding clock-type instruments . . .

easier for both clocks and operator, it is reported

Uses: For winding chart drives, spring clocks or other instruments using spring motors.

Description: Designed to replace keys for winding spring motors, these "Winder-Upper" cranks are chrome plated and have red phenolic plastic handles. Socket is formed to fit standard shafts. Socket material is case hardened steel for long-lasting close tolerance.



Three types of cranks are available

Three types are available. Type A, a simple crank, is almost 4" long. Type B is the same size, but embodies a constant torque chuck which will not allow excessive torque to be applied to the motor. Type C also has this chuck built into a brace-type handle.

(Produced by J. A. Campbell Company, Dept. FP, 645 E Wardlow Rd., Long Beach 7, Calif. . . . or for more information check FP 4020 on handy form, pages 2 and 3.)

WESTON TAG **Thermometers**

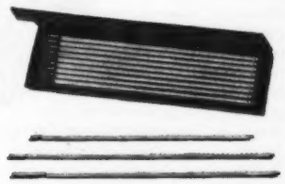
in all forms—ranges—stem lengths—connections

Whether your requirement calls for certified laboratory thermometers . . . or rugged all-metal industrial types . . . or thermometers for remote reading . . . you'll find *exactly* what you require in the Weston-TAG line—*the most comprehensive line of quality thermometers ever offered by ONE manufacturer.* Literature on request. WESTON Electrical Instrument Corporation, 617 Frelinghuysen Avenue, Newark 5, New Jersey.

Laboratory

ALL-METAL

—have readable, dial-type scales and corrosion-resisting stainless steel stems—stem lengths from 2" to 24"—ranges from low as −100°F. to high as 1000°F.—accuracy ½ of 1% of thermometer range.



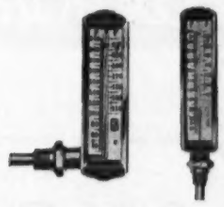
GLASS

—certified sets of ASTM Testing thermometers with overlapping ranges in protective case. Ranges from −36°F. to high as 760°F. Also precision and standard etched stem thermometers for general testing.

Industrial

ALL-METAL

—provide unmatched readability and durability—accuracy within 1% of thermometer range. Available in all types, ranges and stem lengths (2½" to 72") for all requirements.



GLASS (Metal Case)

—available in all forms, all ranges, stem lengths and connections. Accuracy within one scale division. Also submarine types, metal and cupcase thermometers.

Remote Reading

ELECTRICAL

—resistor bulb sensing element permits mounting indicator any distance away from point of measurement. *Multiple* remote readings also possible by use of selector switch and several bulbs.

PRESSURE ACTUATED

—for remote reading, in 5, 6 and 8" dial sizes. Ranges from low as −325°F. to high as 1000°F. Accuracy one scale division unaffected by vibration or severe shock. Cases of iron, brass, or plastic.

WESTON *Temperature Instruments*

9413

— TO INDICATE — RECORD — CONTROL

When inquiring check FP 4021 on handy form, pgs. 2-3

NEW "Lifetime" Dial Thermometers

You're *always* sure of accurate temperature readings with this new Foxboro "Lifetime" Dial Thermometer. Welded "one-piece" bulb and connecting capillary tubing of 316 Stainless Steel prevent corrosion from liquids, fumes or vapors. Needs no protective tubing. Tightly sealed 5" aluminum alloy case. Available in standard ranges to 1000°F. Easy-to-read scale 12" long. Write for **details. The Foxboro Company, 925 Norfolk St., Foxboro, Mass., U.S.A.**

FOXBORO DIAL THERMOMETERS

When inquiring check FP 4022 on handy form, pgs. 2-3

SELF -CONTAINED -CONTROLLED -SUFFICIENT -RELIANT

Stacon Temperature Regulator*

The patented Farris Stacon Temperature Regulator is easily the most independent regulator available today. It's unique. It stands alone. It's trustworthy. It needs no watching. It's perfect for the man who wants no cause for worry . . . who wants to relax in the sure knowledge that his temperatures are constant.

Here's why Stacon stands alone in the field. It has no packing glands to leak or bind . . . the stem moves freely. The liquid in the bulb flashes to vapor in the power bellows, assuring hairtrigger response to move the disc. It operates with unbelievable accuracy—to within plus or minus 1 degree—and it operates with that accuracy under *all* conditions. Stacon provides air-operated accuracy at low, self-operated cost.

Get the details on the one truly outstanding temperature regulator—Stacon. Send for Bulletin 50-1000 to get all the details.

*Patented and Patents Pending

Farris Stacon Corporation
250 COMMERCIAL AVE. PALISADES PARK, N. J.

When inquiring check FP 4023 on handy form, pgs. 2-3

Measures differential pressure for flow measurement down to 0.001" water . . .

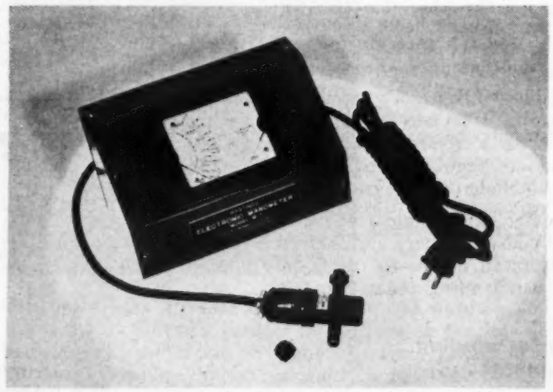
thermopile manometer instrument allows this performance without much drag in line

Uses: Can be used as an indicator, or as sensing device for a recorder in instrumentation of very small flow rates. Used in conjuction with an orifice and by-pass, it measures flow at high rates.

Features: Meter is so sensitive that its two scales range from 0.001 to 0.1 and 0.1 to 2.0" of water (differential pressure).

Description: The noble metal thermopile principle is used in this Electronic Manometer. Rate at which flowing liquid carries off heat is the action on which measurement is based. Installation and operation of the instrument, however, are much simpler than with home-made gadgets of the same general type.

Two taps on the gage tube are connected to the points across which differential pressure is to be measured. Or, when used simply as a flowmeter, the tube can be



Indicator is connected to gage tube by electrical cable

placed directly in the line. If flow rates are higher than the range of the instrument when used directly in the line, sensing tube may be placed in a by-pass around a calibrated orifice. Calibration and accuracy are not affected when long cables are used from the gage tube in a remote system. Gage tubes can be left in the line as permanent parts of the system, since they are not damaged by high pressure and they cause only a negligible pressure drop themselves.

If desired, a selector switch may be used to read from up to five of the gage tubes permanently installed in lines.

Power supply for the instrument is standard 110 v, 60 cps. A constant voltage transformer is available to eliminate any effect due to line variation.

(This thermopile instrument was developed by Hastings Instrument Company, Inc., Dept. FP, Super Highway and Pine Ave., Hampton 10, Va. . . . or for more information check FP 4024 on handy form, pages 2 & 3.)

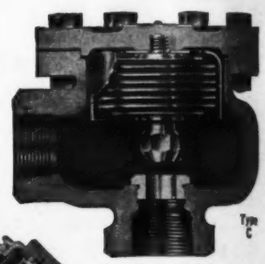
Isotope instrumentation is briefly explained

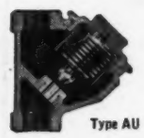
Seven-page pamphlet clearly describes instrumentation for isotope utilization in the laboratory. Properties of alpha and beta particles, and gamma rays are outlined with various methods for their detection. Several gen-

CUT DRYING CYCLE from 24 to 16 HOURS

with Nicholson Steam Traps

A large processor, by substituting Nicholson thermostatic traps for mechanical units, cut important drying operations from 24 to 16 hours, and refining cycles from 5 to 4 hours. They credit the higher and more even temperatures Nicholson traps effect. 5 types for every purpose; sizes ¼" to 2"; press. to 250 lbs. See why leading plants are increasingly standardizing on Nicholsons.





BULLETIN 152

184 Oregon St.
Wilkes-Barre, Pa.

W. H. **NICHOLSON** & CO.

TRAPS · VALVES · FLOATS

When inquiring check FP 4025 on handy form, pgs. 2-3

● It describes and illustrates all models Bin-Dicator bin level indicators for thin or thick walled bins, inside or outside location and suspended interior installation in tanks, silos, hoppers and bins. Also describes Bin-Flo Aerator for keeping pulverized materials moving. Many wiring diagrams. Write for this helpful new catalog.

THE BIN-DICATOR CO.
13946-C Kercheval • Detroit 15, Mich.

When inquiring check FP 4026 on handy form, pgs. 2-3

al suggestions are offered for those who are contem-lating using radiation detection instrumentation for the rst time.

Instrumentation for Isotope Utilization" is issued by Nuclear Instrument & Chemical Corporation, Dept. FP, 23-233 W. Erie St., Chicago 10, Ill. When inquiring pecify FP 4027 on handy form, pages 2 and 3.

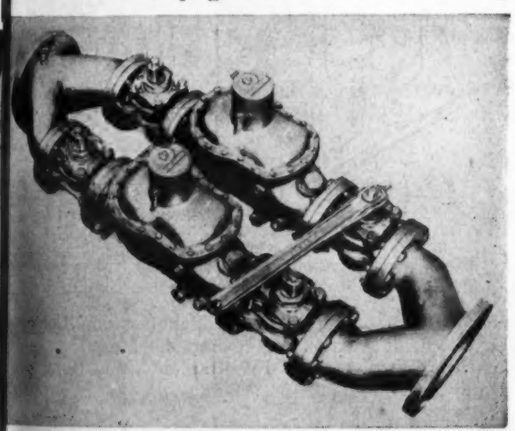
lo shut-down of water system hen compound meter manifold nit is installed . . .

allows one meter to be removed for servicing while other measures flow; meets AWWA standards

Uses: Designed to eliminate costly shut-downs en-ountered at such times when water meter maintenance ight be required.

eatures: Permits uninterrupted service by utilizing ne of two single register compound meters while other is hut down. Manifold assembly has same flow capacity 1,600 gpm) as the American Water Works Association equirement for 8" compound meter.

Description: Manifold assembly consists of two of uilder's single register compound meters in combination ith four lubricated plug valves and two 8" reducing



Compound manifold unit permits uninterrupted service when maintenance is required or when check-testing meter

anifolds, so arranged for maintenance that one side may e shut down at a time without complete interruption of rvice.

y isolating one side, a meter can be removed and ex-anged for one serviced and calibrated in the shop. Mean-hile flow continues through the other meter passage.

is possible with this assembly to check test a meter in lace without a break in service. To make such a test, the scharge valve of the meter may be shut off and the test lug in the meter body used for the test run.

s a unit, the manifold assembly has a laying length that within the American Water Works Association standard r a single 8" compound meter.

attery can be handled as a complete assembly or broken own into its component sections — the heaviest of which eighs 170 lb.

Compound meter manifold units are built by Rockwell fg. Co., Dept. FP, 400 North Lexington Ave., Pitts-rgh 8, Pa. . . . or for more information check FP 4028 handy form, pages 2 and 3.)

In virtually ALL phases of Food Processing BECKMAN pH CONTROL is making vital savings like these . . .

THE BECKMAN MODEL H-2 pH METER is one of a complete range of Beckman pH Meters available for every type of application*. The H-2 is particularly recommended for applications where high accuracy and simple operation—combined with the convenience and low cost of 115-v. AC operation—are desired.

It provides instant and direct pH readings, and a simple, built-in dial permits quick, convenient temperature compensation over the entire range of 0° to 100°C (32° to 212° F.). High reading accuracy is assured by wide-spread dual range scale that reads from 0 to 8 pH or from 6 to 14 pH at the turn of a switch. Same switch also provides instant millivolt readings from 0 to ±800 mv and from ±600 to ±1400 mv for titrations and oxidation-reduction measurements.

Built-in electrode support and compact case design save valuable space and permit easy portability to various plant locations.

Particularly important is the wide range of factory-sealed, maintenance-free Beckman Glass Electrodes available for use with this instrument . . . electrodes that are virtually unbreakable . . . that cover extreme temperature ranges from below freezing to above boiling . . . that have an unprecedented pH range with negligible errors . . . that are abrasion-resistant and chemically durable to a degree never before thought possible in glass electrodes.

*In addition to the H-2 Meter, other Beckman pH equipment includes completely automatic pH indication and control instruments for large-scale process applications . . . battery-operated models for complete portability in plant and field use . . . and a laboratory type instrument that features maximum versatility and accuracy for research and laboratory applications

Throughout the food industry—in baking, canning, sugar refining, brewing, milk processing and a wide range of other operations—cost-conscious operators are making important savings by Beckman-controlling the pH of their processes. Some of the many benefits resulting from Beckman pH Control include:

- **. . . better quality, greater uniformity, fewer rejects in the baking of crackers, bread and other bakery products.**
- **. . . improved fermentation control in brewing, wine making and distilling processes.**
- **. . . better quality and flavor in a wide range of dairy processing and cheese making operations.**
- **. . . more accurate control of flavor and quality, better jel consistency, in jam and jelly making.**
- **. . . improved sterilization, flavor and quality in various canning and preserving operations.**
- ***. . . and valuable savings in time and processing costs in many other food processing operations.***

If you have not yet investigated the savings Beckman pH Control can make in your particular food processing operations it will pay you to discover what others—possibly your own competitors—are doing to cut costs, improve quality and enhance flavor and marketability with the aid of Beckman pH Instruments.

The Beckman Model H-2 pH Meter illustrated above is ideal for most food processing plants because of its high accuracy, its inexpensive AC operation and its simple direct-reading convenience. Let our trained engineers show you how this instrument can quickly pay for itself and produce year-round savings in your operations. For further details see your nearby authorized Beckman dealer—or write direct. **Beckman Instruments, South Pasadena 19, California. *Ask for Data File 52-19***

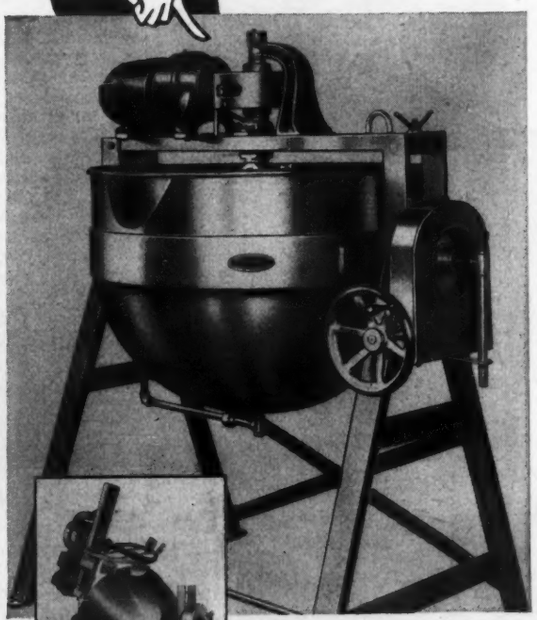
BECKMAN INSTRUMENTS
control modern industries

Beckman Instruments: pH Meters and Electrodes — Spectrophotometers — Radioactivity Meters — Special Instruments

When inquiring check FP 4029 on handy form, pgs. 2-3

here's your big

PROFIT MAKER



Hamilton

TILTING TYPE MIX COOKER

Hundreds of kettle users are finding that a Hamilton Kettle is their most economical purchase. It takes the place of two kettles! A single or double action agitator is instantly removable when cooking products not requiring agitation. Kettle is easily tilted to remove contents through a simple, efficient control wheel. Agitator scrapers are available in maplewood, stainless steel or plastic depending on your requirements. Kettle is steam jacketed 100 or 125 lbs. pressure, made according to ASME code. Capacities 30 to 150 gals.

Superbly made of stainless steel, famous Hamilton quality throughout. Protect the quality and flavor of your product, speed your production and cut costs with a Hamilton Kettle. Available now in any quantity you need.

Write today for bulletin describing in detail specifications, costs, etc.

Hamilton copper and brass works

DIVISION OF THE HAMILTON COPPER WORKS INC. 828 state ave. • cincinnati 4 • ohio

When inquiring check FP 4030 on handy form, pgs. 2-3

Positive Pressure Displacement Used in System for Pumping Thick Pastes, Slurries

Abrasives and corrosives also numbered among fluids for which unit is designed

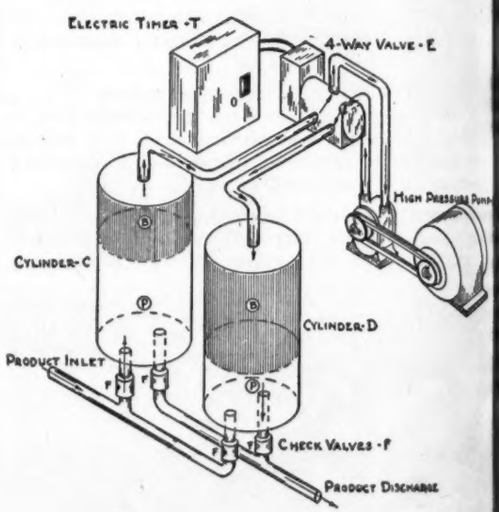
USES: Designed to handle slurries, viscous pastes, abrasive or corrosive fluids, and suspended solids.

Features: Pumping action is positive, yet so gentle that delicate materials can be handled without injury. Construction is simple and sanitary (stainless steel or other materials), and there are no bearings, mechanical pistons, packing glands, valves, or impellers in the pressure cylinders.

Description: Operation of the Hydrex pump is illustrated in the accompanying drawing. High-pressure pump (A) sends hydraulic fluid (B) alternately to and from cylinders (C) and (D), the fluid acting as a hydraulic piston in the cylinder. Pumping action is controlled by four-way valve (E) actuated by electric timer (T). Inlet and outlet check valves (F) determine direction of product flow.

Fluid (B) may be oil or other appropriate fluid, and a suitable membrane is used when it is necessary to prevent the fluid from contacting the product.

Referring to drawing, media (B) is being pumped from cylinder (C) to cylinder (D). Product (P) is drawn from source into cylinder (C) while product in cylinder (D) is being forced out to storage tank or other processing unit. When media (B) reaches set limits of travel in the cylinders, electrical solenoid actuates four-way valve (E), changing port connections and reversing direction of flow of media (B). The media now is pumped from cylinder (D) to cylinder (C).

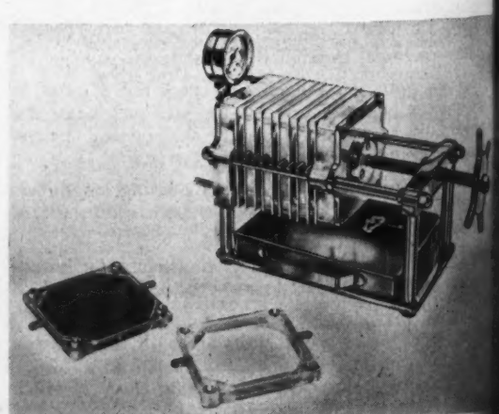


Drawing shows simplicity of operation of Hydrex pump

(Produced by Manton-Gaulin Manufacturing Company Dept. FP, 65 Garden St., Everett 49, Mass. . . .. or for more information check FP 4031 on handy form, pages 2 and 3.)

Permits Operator to See What's Happening On Inside of the Filter

Two sizes of multiple-disc filters are made up in lucite with stainless screens, or in all-lucite



USES: Laboratory-size multiple-disc filters are useful for filtration studies or can be used in production on a small scale. They can also be used for bacterial and pyrogen retention work.

Features: Lucite frames allow operator to watch the course of filtration runs.

Description: Filters are available in a four-inch size with eleven square inches per sheet and also in an eight-

ch size having 52 square inches per sheet. Styles of onstruction available are: 1) all parts coming in con- ct with liquid, of lucite; 2) all lucite except stainless reens; and 3) all parts of stainless. As shown in llustration, complete closure is made with the single andle.

tainless steel model is recommended for handling quids where liquid temperatures are above 120°F and here sterilization is required.

our-inch model requires about one square foot of space. anufacturer can supply filter sheets in grades #1 to 9, and also pyrogen or bacteria retentive sheets. Fil- rs are reported to be easy to clean, light in weight, and heets are simple to remove.

Developed by Ertel Engineering Company, Dept. FP, Kingston 11, N. Y. . . . or for more information check P 4032 on handy form, pages 2 and 3.)

eals take advantage of ne pressure to make alves leakproof . . .

close in same direction as fluid flow, are long wearing and chemical-resistant

Uses: Seals are adaptable to a wide range of valves and ther devices for service with gases and liquids.

Features: Seal is closed in the same direction as the ovement of the liquid, thus taking advantage of line ressure to aid sealing. Leakproof and long wearing fea- ures of the seal are outstanding attributes.

Description: Diagram compares the operation of the and Seal with a conventional washer seal. Cup-shaped

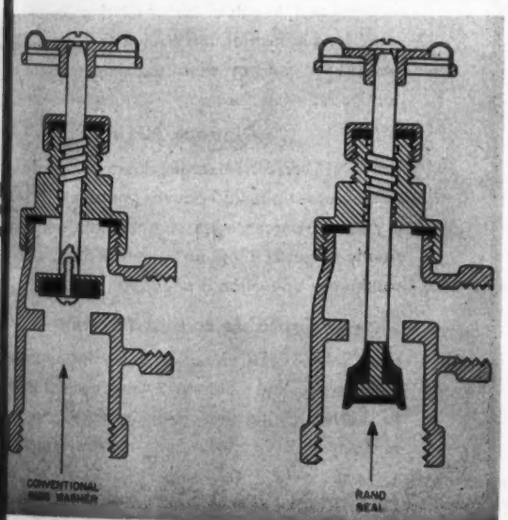


Diagram compares conventional seal with Rand Seal

onical washer of the Rand Seal incorporates an imbedded etal plug which minimizes bending and warping to afford e leakproof feature. If contaminants in the fluid, such as rit or sand, are not pushed ahead of one sealing line con- ct, the conical shape of the seal provides a new line of ntact without damage to the bore. Rubber member of e seal is specially compounded to withstand oil, grease, eam, water, and many chemicals.

Samples are available from maker, Rodic Chemical and ubber Corporation, Dept. FP, Allen Ave., New Bruns- ick, N. J. . . . or for more information check FP 4033 handy form, pages 2 and 3.)

Don't Waste It

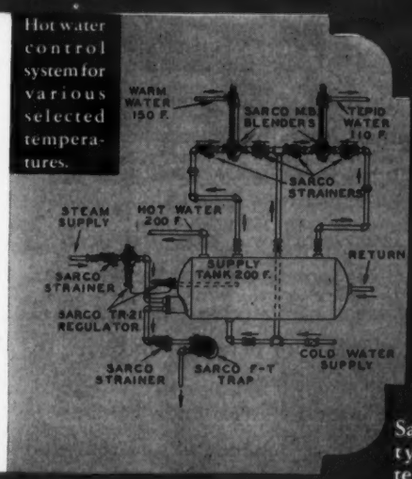
Sarco TR 21 Temperature Regulator (A) controls stored hot water at 180 F. Sarco MB Blender (B) delivers water to showers and faucets at 120 F.

In most plants and institutions hot water is stored for periodic use in process work, gang showers, group wash basins, etc.

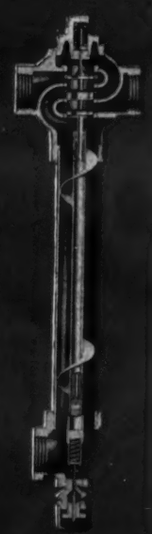
Much of this water (often carried at 180 or 200° F) is wasted by allowing manual temperature adjustment at the point of use.

Avoid buying additional Water Heater capacity by installing Sarco Water Blenders.

Blend It



Hot water control system for various selected temperatures.



Sarco Water Blender type MB provides tempered water at any desired constant temperature.

They add cold water to the hot from the storage heaters to secure the exact temperature desired at the point of use. In effect, storage capacity will be increased by preventing waste.

Catalog 802 tells the whole story.

Write for free copy today.

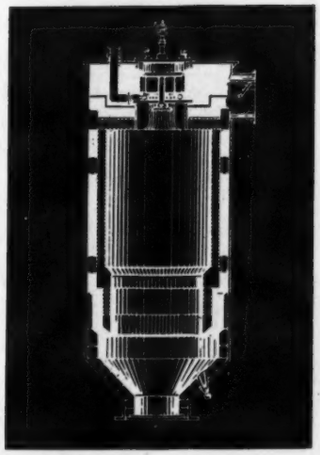
SARCO COMPANY, INC.
Empire State Building, New York 1, N. Y.
Represented in Principal Cities
Sarco Canada Ltd., Toronto 5, Ontario

Sarco Water Blenders

When inquiring check FP 4034 on handy form, pgs. 2-3

installed 1 reordered 7

Peabody direct-fired air heaters



PROBLEM to obtain a compact, reliable, and unusually efficient pressurized furnace as a source of hot combustion gases to spray-dry soluble coffee.

SOLUTION Peabody Engineering custom-designed and fabricated an Air Heater that incorporated all required operating specifications as to heat release, temperature, and flexibility.

RESULT so satisfactory was that *first* Peabody Air Heater that this same soluble coffee manufacturer reordered seven comparable units for installation in other plants both here and abroad.

If the processing of your product involves a combustion problem, look to Peabody for a dependable, custom-engineered solution backed by years of successful experience.

PEABODY
ENGINEERING CORPORATION
580 FIFTH AVENUE • NEW YORK 19, N. Y.
Manufacturers of all types of combustion equipment, direct-fired air heaters, gas scrubbers, coolers, and absorbers

OFFICES IN PRINCIPAL CITIES
PEABODY LIMITED • LONDON, S.W.1, ENGLAND

.908

When inquiring check FP 4035 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

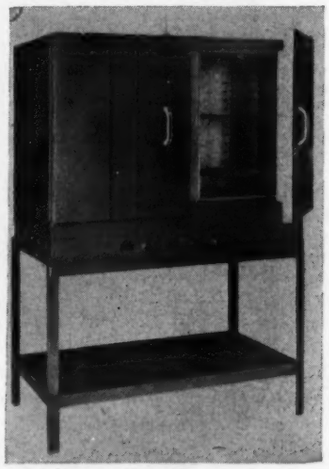
Sterilizes material without steam . . .

electric oven built in four sizes with automatic control

Uses: For sterilizing lab equipment and materials without steam. Dry air is used.

Features: Four sizes are available from 1.2 to 12 cu ft. Temperature can be controlled. Timer is optional equipment.

Description: Ovens are built with double wall construction. Outer wall is enameled steel; inner, stainless.



Stainless shelving is adjustable. Convection or forced circulation can be supplied.

Temperature range of the ovens is 35 to 180°C. Non-arcing mercury relay is used to prevent pitting contacts. Wattage of smallest unit is 700 w; largest uses 1900 w, 110 v AC/DC.

(Product of Blue M Electric Co., Dept. FP, 306-308 W. 69th St., Chicago 21, Ill. . . . or for more information check FP 4036 on handy form, pages 2 and 3.)

Here's how steam was made for 70.6 c/1000 lb

How steam was produced at a cost of 70.6c/1000 lb is told in 8-pages.

Use of steam, fuel and ash handling, and plant steam demand are discussed and illustrated. Large schematic drawing reveals operation of the combustion control system. In addition, a drawing of the instrument panel is tied into actual photographs of function performed by controllers.

Bul R-8 is issued by The Hays Corporation, Dept. FP, Michigan City, Ind. When inquiring specify FP 4036A on handy form, pages 2 and 3.

New Bulletin for Food Processors

BENEFITS from NEW HIGH SPEED MIXER

Homogeneous Mixing Now is Obtained in Fast Time . . . at Less Cost with the "ENTOLETER" Mixer.

The "ENTOLETER" Mixer is a new-type centrifugal machine designed to provide thorough mixing and blending . . . in faster time . . . at reduced cost. In actual manufacturing operations in the food industries, this equipment is producing amazingly uniform mixtures, simply and economically.

Continuous Mixing

The "ENTOLETER" Mixer produces a finished mixture at rates up to 250 pounds per minute. When ingredient percentages in a formula are sufficiently large to allow accurate metering, a truly continuous operation is achieved.

Adaptable to Batch System

The "ENTOLETER" Mixer is easily incorporated in the processing system as a final mixer. It serves to shorten mixing time, with consequent saving and appreciable improvement in product quality.

SEND TODAY FOR YOUR COPY OF THIS NEW INFORMATIVE BULLETIN—ILLUSTRATING AND DESCRIBING SOME OF THE ADVANTAGES OF HIGH SPEED CENTRIFUGAL MIXING

ENTOLETER DIVISION
The Safety Car Heating and Lighting Co., Inc.
1185 Dixwell Avenue, New Haven 4, Conn.

When inquiring check FP 4037 on handy form, pgs.

HENSZEY

Multiple Effect

EVAPORATORS

. . . your answer to

- **INCREASED EFFICIENCY**
- **GREATER PLANT CAPACITY**

If your processing requires evaporation or condensing operations, you will find a Henszey Multiple Effect Evaporator lowers production costs. That's because of the many field-proven exclusive Henszey features.

These features include the reuse of waste vapor . . . automatic feed valves . . . full recovery of solids . . . elimination of foaming . . . PLUS savings up to 70% of the steam and 80% of ordinary water requirements.

Send for descriptive bulletin and list of recent installations.

HENSZEY COMPANY

DEPT. F, WATERTOWN, WIS.

Bottom doors swing open and all inside surfaces are "straight through" — clearly visible and easily accessible for swift, positive cleaning.

HENSZEY

Also Power Plant Specialties including: CONTINUOUS BLOWDOWN • FEED WATER METERS • HEAT EXCHANGERS • INDICATING FLOW METERS BOILER FEED REGULATORS PROPORTIONING VALVES

When inquiring check FP 4038 on handy form, pgs. 2-3

Vacuum or pressure pump requires no oil on working parts . . .

instead, four vanes of carbon sliding in slots in the rotor lubricate themselves

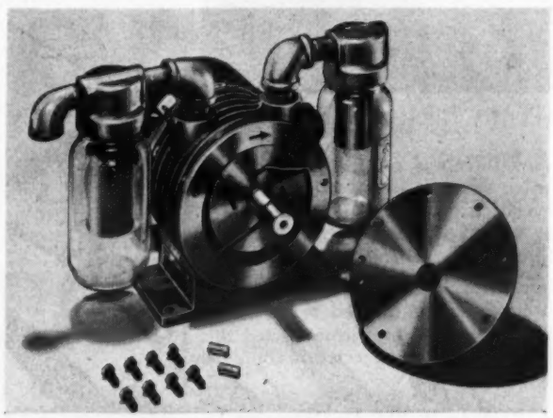
Uses: Laboratory jobs, on instruments and controls, and where the delivery of absolutely oil-free air is essential for proper operation.

Features: Ball-bearings are grease-sealed for life, and a ventilated space between bearings and pumping chamber prevents grease from entering the latter.

Description: Four vanes of carbon sliding in slots in the rotor of these pumps lubricate themselves — eliminating the need for oiling. Centrifugal force seats the rotor vanes with constant pressure against the housing which is stated to produce unvarying performance at full rating.

Vanes take up their own wear automatically. Construction is simplified:—there are no body or end plate spacer gaskets, no shaft seal, and no lubricator.

Three models are offered with oil-less construction. All produce up to 20" vacuum and up to 10 lb pressure. Model



End plate taken off oil-less pump to show the four vanes of carbon in rotor slots

0740 delivers from 3.5 to 5.6 cfm, Model 1550 from 8 to 10.5 cfm, and Model 3040 from 17 to 24 cfm, according to rpm selected.

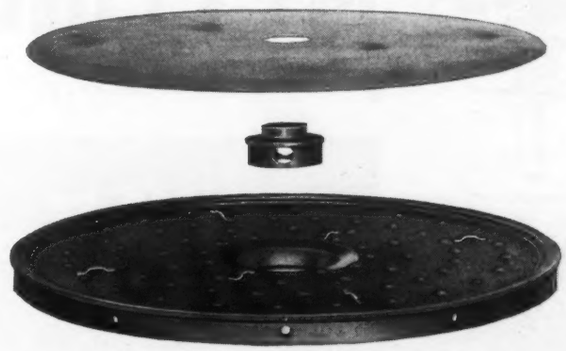
(Available from Gast Manufacturing Co., Dept. FP, Benton Harbor, Mich. . . . or for more information check FP 4039 on handy form, pages 2 and 3.)

Recommends line purifier to cut processing costs

Six-page fold-out bulletin describes steam, air, and vapor purifier. Drawings supplement a table of sizes for six models. These purifiers are recommended for cleaning and drying steam or gas flows. Chief advantages are the lowered corrosive and erosive properties of the gas or vapor after moisture and particles of scale have been removed.

Applications and operation are explained and illustrated. Drawing shows rotary element in action. Efficiency is high, bulletin explains, with 99% of all entrainment being removed. Bul 500 is issued by Purifier Div., The V. D. Anderson Company, Dept. FP, 1935 W. 96th St., Cleveland 2, Ohio. When inquiring specify FP 4040 on handy form, pages 2 and 3.

SPARKLER FILTERS • SPARKLER FILTERS



SPARKLER FILTERS • SPARKLER FILTERS • SPARKLER FILTERS

SPARKLER FILTERS • SPARKLER FILTERS

You Get

Complete sanitation with

SPARKLER FILTERS

The illustration above shows at a glance why Sparkler Filters are the most sanitary, most efficient filters ever designed.

Starting with the basic part of any filter — the filter element — Sparkler design makes every surface easily accessible for thorough cleaning. The few simple parts in the photo represent a complete Sparkler horizontal filter plate, with no cracks, crevices, or hard-to-reach parts that can imperil product purity by retaining objectionable material.

Once the cartridge of plates is removed from the filter, disassembly is quick and easy. Just loosen the tie-rods and the plates come apart in 1 - 2 - 3 order. Lift the paper off, remove the perforated metal wafer, then remove the supporting plates. One man does the entire job in a matter of minutes.

Inside the tank, too, complete sanitation has been provided for. All surfaces are smooth, and all joints are rounded off for accessibility and thorough cleaning.

When you need absolute product purity, you are safest with Sparkler.

Write Mr. Eric Anderson for full information or engineering assistance

SPARKLER MANUFACTURING CO.
Mundelein, Illinois

Sparkler International Corp. Herengracht 568, Amsterdam, Holland

Sparkler Western Hemisphere Corp. Mundelein, Ill., U.S.A.

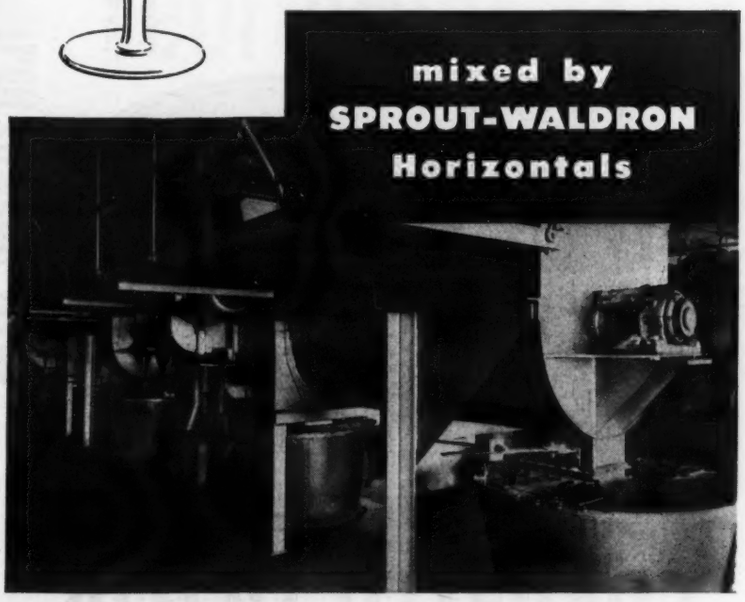
World's largest manufacturers of horizontal plate filters . . .

SPARKLER FILTERS • SPARKLER FILTERS

When inquiring check FP 4041 on handy form, pgs. 2-3

"MY-T-FINE"

powdered desserts...



"Spic and Span" . . ."Clean as a Pin"—describes the efficient mixing department at Penick & Ford, Ltd., Brooklyn, N.Y.

It's here that the nationally advertised MY-T-FINE powdered puddings are mixed . . . "untouched by human hands." The complete process is entirely automatic!

Four Sprout-Waldron 10-B Horizontal Mixers do the job. For the past 14 years they have helped produce this delicious and nutritious dessert food product, with an outstanding record for uninterrupted production. The special sanitary construction of these units permit easy cleaning and eliminate the possibility of contamination.

The "mix" consisting of sugar, flavoring and other dry ingredients, must be absolutely correct . . . "ok" by laboratory test and by taste. Mixing time for each 5000 lb. batch averages 50 minutes, after which product is discharged to packaging bins on floor below. The spotless Penick & Ford Laboratory-Kitchen assures quality control from start to finish.

Sprout-Waldron has been serving the day-by-day and "special" needs of the processing industries for a good many years. So, you can bring your mixing problems to Sprout-Waldron with confidence that you will receive the best recommendation for the job.

Just contact Sprout-Waldron & Company, Inc.,
25 Logan Street, Muncy, Pa.

SW SINCE 1866

SPROUT-WALDRON

HORIZONTAL MIXERS

216

When inquiring check FP 4042 on handy form, pgs. 2-3

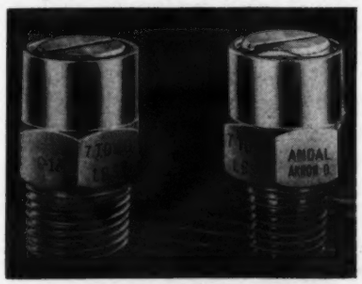
Prevents build-up of pressure in tank . . .

low-pressure relief valve can be set for pressures of 7 to 10 psi

Uses: Low pressure relief valve. Especially useful where unwanted pressure could build up as in storage systems, tanks, shipping containers.

Features: Can be set with a screwdriver for pressures from 7 to 10 psi.

Description: Sturdy corrosion-resistant parts are used to arrive at the compact design of this valve. Although



Shows slotted pressure adjustment at top of valve

special lengths can be furnished on order, standard size is 1-15/16 x ¾" overall diam. Valve is threaded for ¼ or ⅜" pipe fitting. Again, special threading is available.

Furnished in brass, steel or stainless, it has been constructed to withstand weathering and has demonstrated this ability by being subjected to standard salt-spray tests.

Valve is designated as Type C-13.

(Produced by Andrews-Alderfer Company, Dept. FP, 1043 Home Ave., Akron 10, Ohio . . . or for more information check FP 4043 on handy form, pages 2 and 3.)

Tells of sludge pumps —non-clogging

Series of non-clogging pumps described herein are made both horizonal and vertical, in sizes from 3 to 10" inclusive. Particular application is in handling sewage and sludge containing rags, trash, fibrous material, grit and even large solids.

Illustrative material in 8-page bulletin includes cross-sectional views and photographs of various of the pumps. A table shows the dimensions and capacities of pumps and diameter of solids (1¾ to 3½") which can be handled. Bul 206-4 is issued by Lawrence Machine and Pump Corp., Dept. FP, 371 Market St., Lawrence, Mass. When inquiring specify FP 4044 on handy form, pages 2 and 3.

ONE MAN NOW
does the work of three

AN ACTUAL CASE . . . it took three men to clean the bottling line equipment and floors at this Southern bottling plant. Now, with the *Sellers Hi-Pressure Jet Cleaner*, it takes only one. Better clean-up is accomplished . . . and no equipment needs to be dismantled.

"We have tried a number of cleaners," said the Plant Manager, "but only the Sellers Hi-Pressure Jet Cleaner does the work. It is doing a wonderful job for us."

Clean-up costs can be reduced as much as 95% with the *Sellers Hi-Pressure Jet Cleaner*. For your own competitive position, you should get the complete facts. *Send for Bulletin C-1.*

SELLERS INJECTOR CORPORATION, 1619 Hamilton Street, Philadelphia 30, Pennsylvania.

When inquiring check FP 4045 on handy form, pgs. 2

HARPER

Specialist in *all* Non-Corrosive Fastenings!

Call Harper *first!* America's largest producer of non-ferrous and stainless steel fastenings—specializing in bolts, screws, nuts, rivets, washers and accessories in brass, bronze, copper, aluminum, Monel, stainless steel—to solve your problems in corrosion, heat, abrasion and stress. Over 7,000 items stocked by warehouses and distributors from coast to coast.

FREE—*this 56-page Harper Price List and Stock Book.*

The H. M. Harper Company
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CALL HARPER FIRST!
for Bolts, Screws, Nuts, Rivets, Washers and Accessories in Brass, Bronze, Copper, Aluminum, Stainless Steel.

When inquiring check FP 4046 on handy form, pgs.

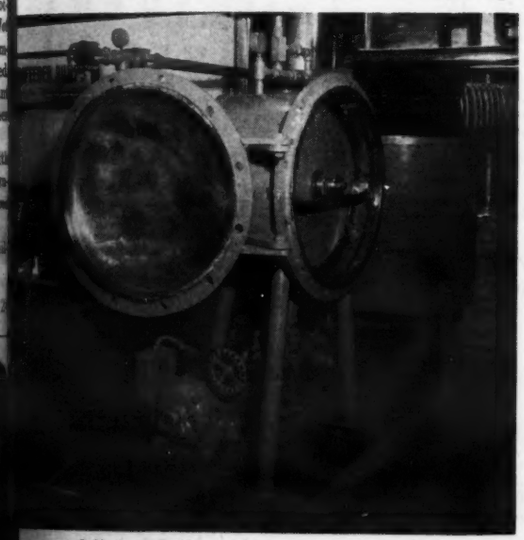
Processing time is saved by automatic cleaning of pressure-leaf filter . . .

spray nozzles wash off sludge as the leaves rotate; filter can be made of many construction materials

Uses: Principal applications include filtration of whiskies, wines, beer, water, edible oils, lard, and fats.

Features: Automatic cleaning is rapid. Filter can be back in operation in 10 to 15 minutes, including filter layer formation. Any type of filter material can be used — fibrous, granular, powder or woven. Because of simplified design, a wide range or corrosion-resistant metals and coatings can be used. Filters are made with flow rates as high as 2000 gpm. Interior is readily accessible for inspection by opening hinged door at end.

Description: The Hercules self-cleaning pressure-leaf filter is shown in the accompanying photograph. Filter leaves are mounted on centrally located discharge pipe



Self-cleaning filter with inspection door open

which also serves as a rotary shaft. Pipe passes out the rear center of the fixed end of tank, through a stuffing box, and connects with a sealed swivel joint. This pipe and the attached leaves are rotated by means of a motorized worm-gear drive during cleaning. Sump at bottom of tank serves as a receiver for spent filter layers and sludge, which are removed through large opening at bottom of tank.

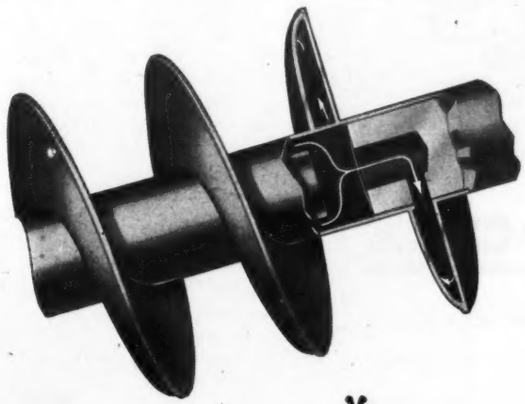
A leaf consists of a circular frame enclosing a heavy-mesh middle screen which gives rigid support to two finer screens (30-mesh is standard) on either side of it. Besides its supporting function, the middle screen also serves as a spacer for draining filtrate into the center, perforated discharge pipe.

For cleaning, filter is stopped and drained, and the rotating mechanism is started. As leaves rotate they are sprayed with water from nozzles at top of filter. Sludge goes out opening in bottom of filter. Usual water rate is 6 to 10 gpm for each leaf.

Filters are welded construction throughout, and conform to the highest standards for welded pressure vessels. Sizes range from 50 to 1000 sq ft of filter area.

Hercules Filter Corporation, Dept. FP, 204 21st Ave., Paterson 3, N. J. . . . or for more information check FP 4047 on handy form, pages 2 and 3.)

A great new advancement in heat exchangers...

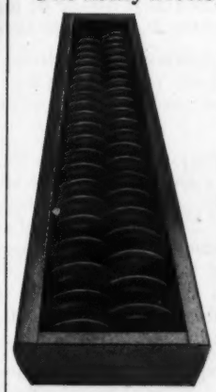


THE **holo-flite*** PROCESSOR
(HOLLOW-FLITE)

A simpler, more compact way to cool slurries, solids or pastes—in continuous flow!

Do you have processes where slurries, solids, pulps or pastes must be cooled or cooked? Do you know you can now handle such processes—*in continuous flow*—in as little as 1/5th the space required by other types of heat exchangers—and with many other important advantages?

The newly-developed HOLO-FLITE Processor is the answer!



what IT IS!

Basically the HOLO-FLITE consists of two or more flights of hollow-bladed screw conveyors. The product to be processed moves in a trough around the conveyor screws. The heat-transfer fluid circulates through the hollow blades and shafts of the conveyor. The product is constantly rotated into, around, under and over the blades and shafts through which the heat-transfer fluid is circulating, assuring quick, uniform heat passage between the two mediums—*as the product is continuously moved along in a bulk-flow without interruptions!*

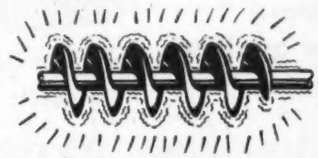
Get the complete story on HOLO-FLITE *savings and how this new advancement can simplify your processing operations. It is backed by the same organization that pioneered* COTTRELL *Precipitators and* MULTICLONE *Collectors—your assurance of complete dependability.*

DETAILED INFORMATION!
New 8 page bulletin describing HOLO-FLITE features and applications will gladly be sent on request. Write, wire or phone for your free copy!

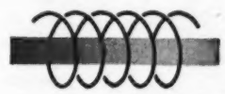
*Reg. T.M.

why IT'S BETTER!

The HOLO-FLITE principle provides many important advantages in modern processing operations...



ITS LARGE HEAT-TRANSFER SURFACE requires far less space—as little as 1/5th the space required by other heat-exchange equipment. Further, flights can be "stacked" as high as desired to save floor space, simplify installation!



ITS SLOW ROTATION IS SO GENTLE that granular and powdered solids are handled with no dusting—little or no particle abrasion. Result—no dust recovery problems . . . simple, inexpensive installation.

IT IS ADAPTABLE to a wide range of applications—handles solids, pulps, pastes and slurries with equal ease. Heat transfer agent can be refrigerant, water or other fluids to provide a wide range of temperatures. Cooled products can be packed directly from HOLO-FLITE discharge, saving time, space and additional handling.

IT CAN BE DESIGNED to handle virtually any capacity by varying the diameter and length of the flights, and the number of "tiers."

WESTERN Precipitation CORPORATION

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

Main Offices: **1061 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA**
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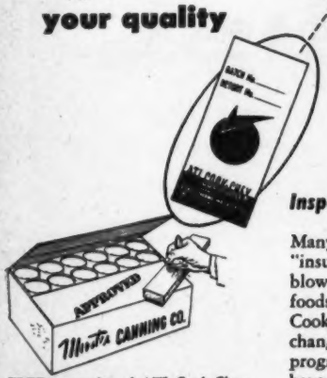
When inquiring check FP 4048 on handy form, pgs. 2-3

safeguard your quality with ATI COOK·CHEX



FREE—samples of ATI Cook-Chex and valuable quality control data. Write today. No obligation, of course.

ASEPTIC-THERMO INDICATOR CO.
Quality Control Division, Dept. FPR-17
5000 W. Jefferson Blvd.
Los Angeles 16, Calif.

Inspector-approved quality control retort tags . . .

Many leading food processors use ATI COOK-CHEX to "insure" cooking certainty, prevent spoilage, and prevent blown cans and flat sours. No matter how many different foods you put through your retorts, there's a specific ATI Cook-Chex tag for *your* protection, too. By a simple color change, from purple to green, timed to your process programs, ATI Cook-Chex will tell you if your foods have been cooked.

Government food inspectors know that canners who use ATI Cook-Chex are doing everything possible to safeguard quality.

Add ATI Cook-Chex to your quality control program. The low cost is insignificant in comparison to the spoilage and expense they can prevent.

When inquiring check FP 4049 on handy form, pgs. 2-3

EVERY ARTICLE IN FOOD PROCESSING IS "STAFF WRITTEN"

Every article in FOOD PROCESSING is terse, brief, to-the-point . . . yet packed with essential facts of developments important to every man in food processing.

For every article is "Staff Written." Our Editors dig out the vital news-facts, then write them in the fewest possible words.

That's why you read so much . . keep up with developments . . in short reading time. You don't have to "wade through" long, hard-to-read articles.

That's why you don't find these articles signed . . every one is "Staff Written." It's the most difficult kind of editing, but it pays big dividends to every busy reader.

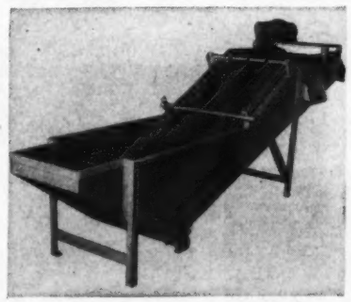
Unites grading, soaking, washing in one unit . . .

tomato hand sorting eliminated, fruit larger than 2⅜" separated for whole peeling line

Uses: To wash and grade tomatoes.

Features: Combines soak tank, spray washer and tomato grader. Only the larger more nearly perfect fruits, suitable for peeling and whole can packing, pass over the conveyor and into the scalder, eliminating hand sorting that now must be done.

Description: Tomatoes are dumped into soaking section. Removed under series of water sprays by conveyor which is combination roll chain and rod construction with a spacing between the rods of 2-⅜".



Tomato grader combines soaking, washing

After being elevated through the straight section, under-sized tomatoes (those smaller than 2-⅜") are dropped out and roll into a side chute. They are then caught on the trimming conveyor for use as juice, pulp, etc.

(Tomato Washer Grader is a development of Berlin Chapman Co., Dept. FP, Berlin, Wis. . . . or for more information check FP 4050 on handy form, pages 2 and 3.)

Vibration separates, fluffs material being dried . . .

continuous drying unit has controllable temperature, air rate, and retention time

Uses: For process and final drying of materials which can be conveyed by vibration. Can also be used as cooler.

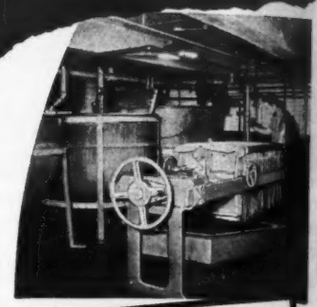
Features: Gentle fluffing and fluidizing effect of the vibration produces fast, efficient drying (or cooling) without contamination, material degradation, or loss of color or luster.

Description: Conveying system of the 3AC Direct Heat Class Dryer is a straight wire type trough. As the material is moved along, drying or cooling air is blown evenly up through it. Dryer is made up of standard length sections, each individually powered. Complete installation, thus, is tailored to fit job needs. Material speeds, air temperatures, and air volumes can be varied in each section. A final cooling zone may be used where needed.

Compact unit (5 x 5' floor space) shown in photograph is designed for low capacity continous drying (or cooling) of granular material. Material leaving the hopper is conveyed over the 12 x 30" long stainless steel screen by vibration. Amplitude may be varied automatically or manually to provide desired retention time. Air enters through air filter and manually controlled louvre. Rate and distribution are thus controlled. Blown through steam coils, the air is directed upwards through the screen and material bed. Temperature is themostatically controlled. Spent air leaves through flanged duct which can be connected to an exhaust system.

Other features of the dryer include indicating instruments for air temperature, air flow, and steam pressure; heat-

for Gelatin or Glucose
Lime Juice or Lard
Malt or Mash



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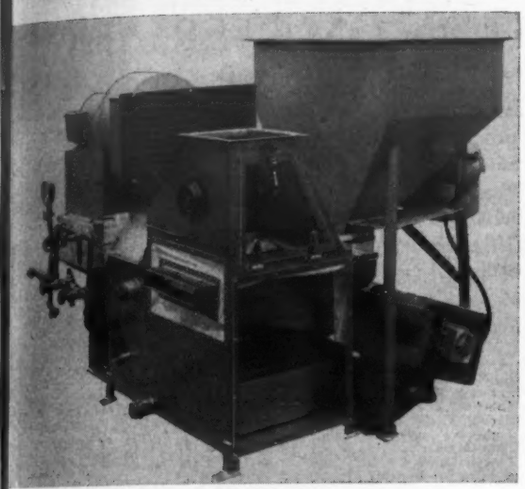

Dryer-vibrator requires floor space of 5 x 5'

resistant flexible connections between enclosure and both deck and hopper; hinged access door to deck and below-deck; wash drain; and insulation, when used for drying.

(Product of Traylor Vibrator Div., Jeffrey Manufacturing Co., Dept. FP, Columbus 16, Ohio . . . or for more information check FP 4052 on handy form, pages 2 and 3.)

Convention & Exhibit Schedule

May 5-6. National Air Pollution Symposium, Huntington Hotel, Pasadena.

May 7-9. Purdue Industrial Waste Conference, Purdue Memorial Union, Purdue University, Lafayette, Ind.

May 22-24. American Society for Quality Control, Sixth Annual Convention, Onondaga County War Memorial Auditorium, Syracuse, N. Y.

May 25-28. Flavoring Extract Manufacturers' Assn. of the U.S. 43rd Annual Convention, Edgewater Beach Hotel, Chicago.

June 1-4. American Society of Refrigerating Engineers, Annual Meeting, Biltmore Hotel, Atlanta, Georgia.

June 1-5. National Confectioners' Association 69th Annual Meeting and Exposition, Conrad Hilton, Chicago.

June 8-11. The Institute of Food Technologists Exhibit, 12th Annual Meeting, Civic Auditorium, Grand Rapids, Mich.

June 9-13. 3rd Annual Conference on Industrial Research, Columbia University, New York City.

June 10-12. Produce Prepackaging Association, Second Annual Conference and Exposition, The Neil House, Columbus, Ohio.

June 17-27. Third annual course in Statistical Quality Control, University of Colorado College of Engineering, applications sent to John F. Wagner, Boulder, Colorado.

Aug. 12-14. Western Packaging & Materials Handling Exposition, Los Angeles Shrine Convention Hall, Los Angeles.

Oct. 14-16. Industrial Packaging and Handling Seventh Annual Exposition, Coliseum, Chicago.

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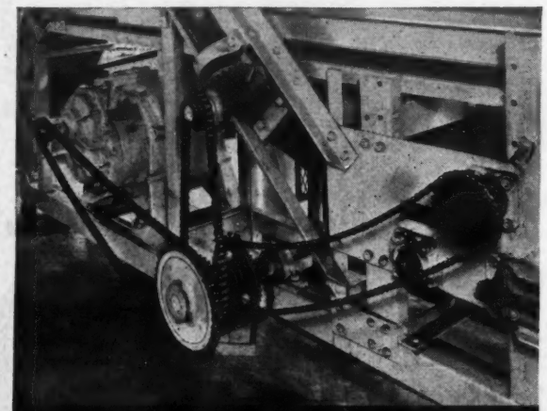

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DIAMOND ROLLER CHAINS

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Discussed in This Issue---
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Use this "quick-locator" when you want information on a specific type of process, equipment or material mentioned in the processing stories or the advertisements in this magazine. Everything discussed in this issue is given here, if you want more data you can write manufacturer direct . . . or turn to pages 2 and 3 and use the handy "Information Request Slip." This is a special service provided by the publisher . . . no obligation or charge, of course. The publisher contacts the proper manufacturers for you—information comes to you direct.

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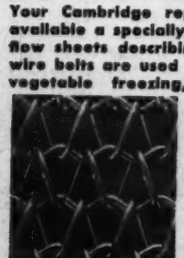
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BRIEFS...

from contemporary publications

READ THEM . . . IN THIS ISSUE

You get a "quick look" at the most valuable articles being published in this field, and kindred fields . . . by reading the "BRIEFS" section of FOOD PROCESSING every month.

Our Editors read more than 50 contemporary publications every month . . . select those articles they believe you will want to know about . . . and, in terse style, they tell you about them. Name of publication and issue are given so you can read those you want to know more about.

It's a monthly service . . . to save you time . . . yet keep you informed. See "BRIEFS" in this issue, page 46.

"That's Interesting"

More carotene for margarine

From a small original plant processing one ton of carrots per week, Barnett Laboratories of Long Beach, California now operate facilities with a capacity of 50 tons daily. Conversion of the third plant at Soledad was completed a few months ago. The other plants are located at Long Beach and Temecula. Increased output will aid in meeting the demand for carotene from the margarine industry.

Control of alfalfa weevil subject of sound film

A 16 mm color film with sound track depicts life history and habits of the alfalfa weevil and emphasizes the need for early control. The views exhibit the effectiveness of Dieldrin in control of this pest. Film was made by the Office of Entomologist, State of Montana, in cooperation with Shell Chemical Corp. and Julius Hyman & Co. Copies will be made available to County Agents for showing in Colorado, Idaho, Montana, Nevada, Utah and Wyoming. At this time, only one state, Colorado, has recommended Dieldrin. (From Newsletter of Julius Hyman & Co., Denver, Colo.)

PAR — Project Adequate Roads

PAR — Project Adequate Roads, recently inaugurated nationwide movement for better roads, can lead America out of the traffic muddle, once a program of orderly highway improvement based upon the use of Sufficiency Ratings is adopted in the states, Roy E. Jorgensen, Engineering Counsel for the National Highway Users Conference declared at the recent Kansas Highway Engineering Users Conference National Press Bldg., Washington 4, D. C.)

Display sign is made like a sandwich — we'd call it "decal on vinylite"

Display signs that can be attached to windows in a few seconds, and removed just as quickly, are comprised of decals sealed between two layers of clear vinylite plastic sheeting. This tough material strongly resists tearing, abrasion, mold, mildew, moisture, grease and most chemicals. Signs are mounted by wetting window, or in some cases a mirror, with water. Sign is placed over wetted surface and excess water is removed with a squeegee. Signs adhere through all types of temperature change. (Transeal, Ltd., 821 North Ave., Plainfield, N. J.)

Instrument detects "pickle lag"

Scientists at Armour Research Foundation of Illinois Institute of Technology have developed a device which measures the rate of corrosion of steel, used in tin cans. The instrument detects if a steel sample has "pickle lag" and reveals the precise rate at which it will corrode. "Pickle lag" is defined as being a tendency of the metal to corrode at a very slow rate, then speed up and level off at a constant rate. Earlier research had shown that cans made from steels without "pickle lag" have a longer shelf life.

Billion and a half miles per day

Vehicle miles traveled over US highways last year can be estimated at a billion and a half a day. E. D. Bransome, President and Chairman of Mack Trucks, Inc., declares that this ever increasing volume has prompted his company to back a program emphasizing the following objectives. 1) Foresight in building roads, and engineering them to do the job they must be expected to do. 2) Bring about more widespread realization and admission that roads wear out eventually. 3) Insistence that highway funds should not be diverted but used solely for highway construction and maintenance.

Bad way to drop money

Little drops of fluid escaping along a shaft, soon count up to costly losses. Different fluids vary in the size of the drop they form. Using H_2O for a test, it was found that 10 drops per minute amounted to 68.43 gal/yr which projected to 100 drops, of course, comes out 684.30 gallons. (From the Stuffing Box, Durametallic Corp., Kalamazoo, Mich.)

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7. Apron or roller (feeding) speed
8. Exact development of drying curves required.
9. Possible simple changes in stock preparation prior to drying, to attain maximum quality and efficiency.
10. Controls required to maintain quality and quantity drying in uniform, continuous production.

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C. G. SARGENT'S SONS Drying Research Laboratory for Industry is staffed by men who KNOW their jobs. They have the mental curiosity of the true scientist combined with the dollars and cents, how-can-it-be-done-to-keep-quality-up-and-cost-down outlook of experienced mill men. Here is an invaluable source of experience and knowledge, to serve you and your industry. Wherever a drying process occurs, from food to plastic, textiles to rubber, paper to paint, SARGENT'S Drying Research Laboratory is highly qualified to serve, advise, recommend, and design special drying equipment.

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For more information on product at right, specify FP 4061 . . . see information request blank between pages 2 and 3.

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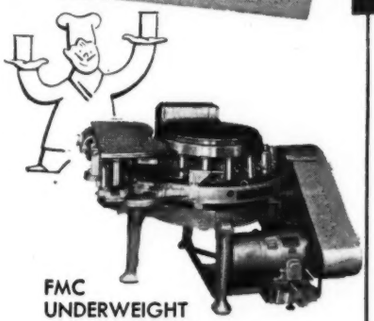

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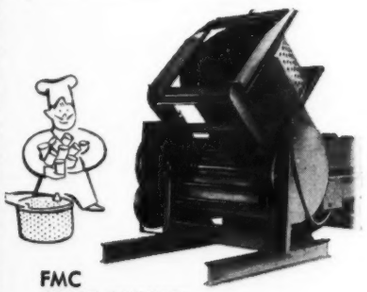

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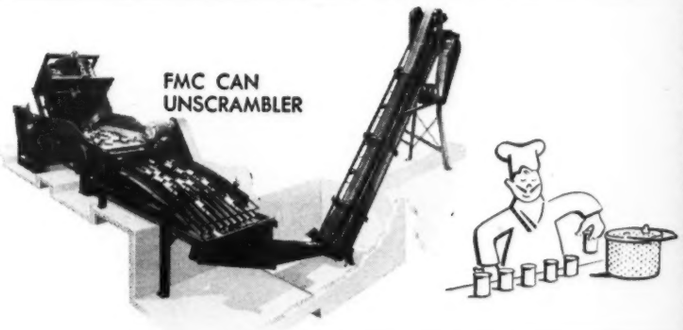

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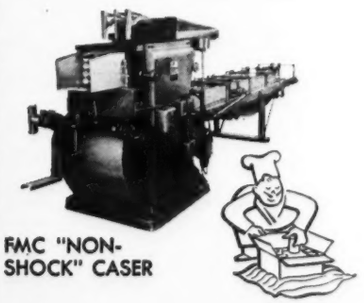

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